Phase Ia Archeological Assessment

Survey Technical Report

September 2008

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1. Introduction to Purple Line Study

The Maryland Transit Administration (MTA) is preparing an Alternatives Analysis and Draft Environmental Impact Statement (AA/DEIS) to study a range of alternatives for addressing mobility and accessibility issues in the corridor between Bethesda and New Carrollton, Maryland. The corridor is located in Montgomery and Prince George's Counties, just north of the Washington, D.C. boundary. The Purple Line would provide a rapid transit connection along the 16-mile corridor that lies between the Metrorail Red Line (Bethesda and Silver Spring Stations), Green Line (College Park Station), and Orange Line (New Carrollton Station). This *Phase Ia Archeological Assessment Survey Technical Report* presents the analysis of archeological resources that were summarized in the AA/DEIS. It describes the methodology used for the analysis and the results of that analysis.

This Technical Report presents the methodology and data used in the analyses documented in the Purple Line Alternatives Analysis/Draft Environmental Impact Statement. The results presented in this report may be updated as the AA/DEIS is finalized and in subsequent study activities.

1.1. Background and Project Location

Changing land uses in the Washington, D.C. area have resulted in more suburb-to-suburb travel, while the existing transit system is oriented toward radial travel in and out of downtown Washington, D.C. The only transit service available for east-west travel is bus service, which is slow and unreliable. A need exists for efficient, rapid, and high capacity transit for east-west travel. The Purple Line would serve transit patrons whose journey is solely east-west in the corridor, as well as those who want to access the existing north-south rapid transit services, particularly Metrorail and MARC commuter rail service.

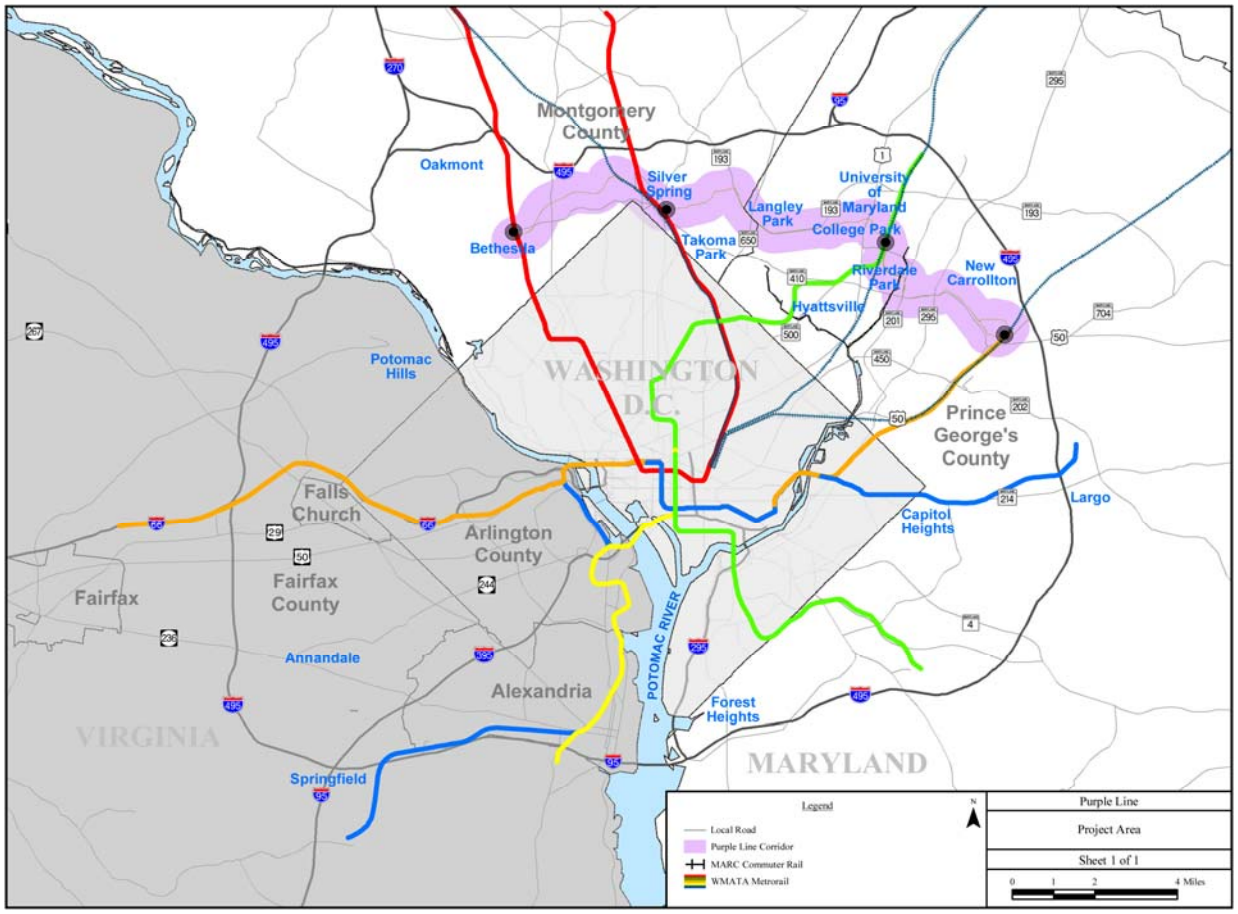
The corridor has a sizeable population that already uses transit and contains some of the busiest transit routes and transfer areas in the Washington, D.C. metropolitan area. Many communities in the corridor have a high percentage of households without a vehicle, and most transit in these communities is bus service. Projections of substantial growth in population and employment in the corridor indicate a growing need for transit improvements. The increasingly congested roadway system does not have adequate capacity to accommodate the existing average daily travel demand, and congestion on these roadways is projected to worsen as traffic continues to grow through 2030.

A need exists for high quality transit service to key activity centers and to improve transit travel time in the corridor. Although north-south rapid transit serves parts of the corridor, transit users who are not within walking distance of these services must drive or use slow and unreliable buses to access them. Faster and more reliable connections along the east-west Purple Line Corridor to the existing radial rail lines (Metrorail and MARC trains) would improve mobility and accessibility. This enhanced system connectivity would also help to improve transit efficiencies. In addition, poor air quality in the region needs to be addressed, and changes to the existing transportation infrastructure would help in attaining federal air quality standards.

1.1.1. Corridor Setting

The Purple Line Corridor, as shown in Figure 1-1, is north and northeast of Washington, D.C., with a majority of the alignment within one to three miles of the circumferential I-95/I-495 Capital Beltway.

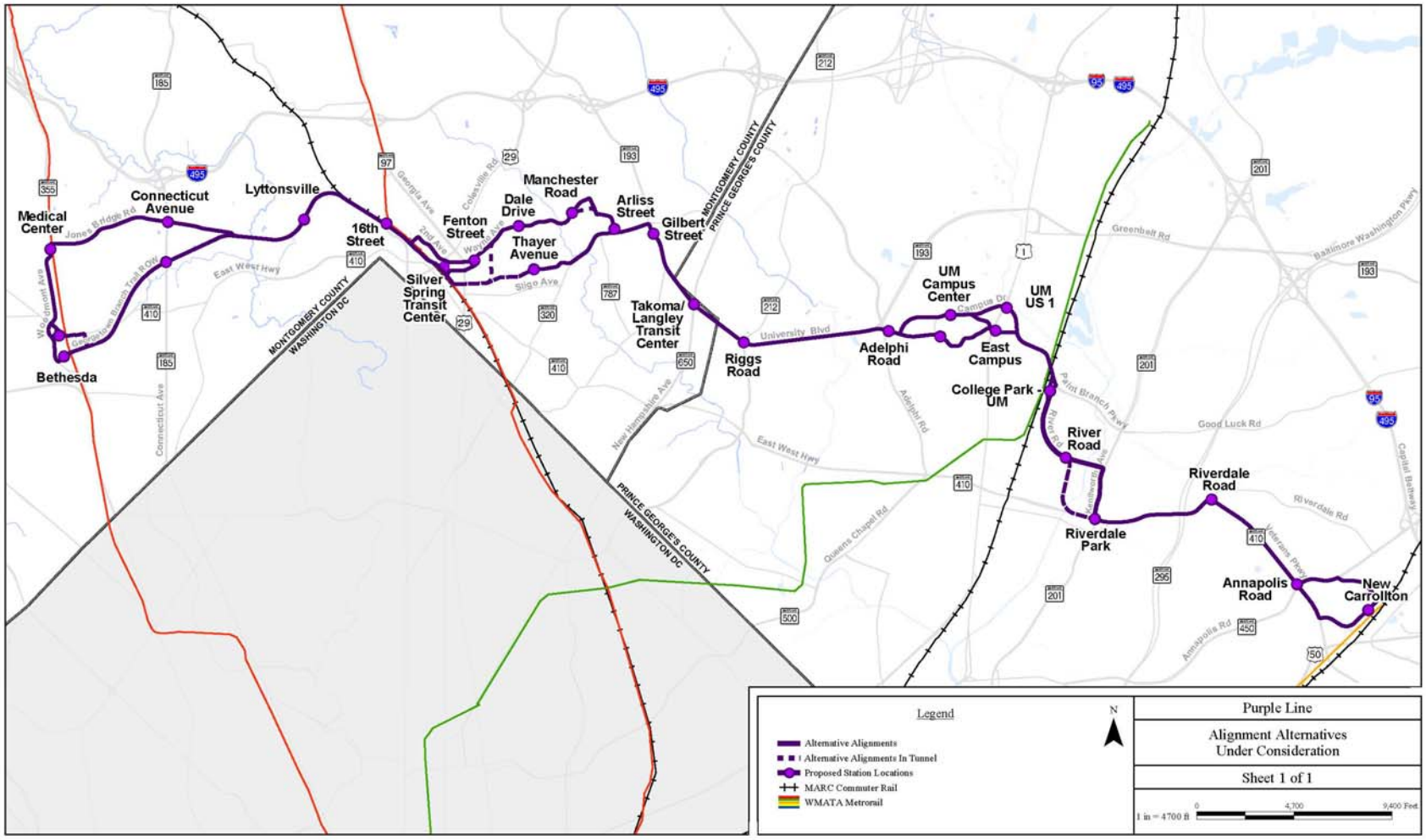
Figure 1-1: Project Area



1.2. Alternatives Retained for Detailed Study

The Purple Line study has identified eight alternatives for detailed study, shown on Figure 1-2. The alternatives include the No Build Alternative, the Transportation System Management (TSM) Alternative, and six Build Alternatives. The Build Alternatives include three using bus rapid transit (BRT) technology and three using light rail transit (LRT) technology.

Figure 1-2: Alternative Alignments



All alternatives extend the full length of the corridor between the Bethesda Metro Station in the west and the New Carrollton Metro Station in the east, with variations in alignment, type of running way (shared, dedicated, or exclusive), and amount of grade-separation options (e.g. tunnel segments or aerial). For purposes of evaluation, complete alignments need to be considered. These alternatives were used to examine the general benefits, costs, and impacts for serving major market areas within the corridor.

1.2.1. Alternative 1: No Build Alternative

The No Build Alternative is used as the baseline against which the other alternatives are compared for purposes of environmental and community impacts. The No Build Alternative consists of the transit service levels, highway networks, traffic volumes, and forecasted demographics for horizon year 2030 that are assumed in the local Constrained Long Range Plan of the local metropolitan planning organization (in this case, the Metropolitan Washington Council of Governments).

1.2.2. Alternative 2: TSM Alternative

The TSM Alternative provides an appropriate baseline against which all major investment alternatives are evaluated for the Federal Transit Administration's New Starts funding program. The New Starts rating and evaluation process begins when the project applies to enter preliminary engineering and continues through final design.

The TSM Alternative represents the best that can be done for mobility in the corridor without constructing a new transitway. Generally, the TSM Alternative emphasizes upgrades in transit service through operational and minor physical improvements, plus selected highway upgrades through intersection improvements, minor widening, and other focused traffic engineering actions. A TSM Alternative normally includes such features as bus route restructuring, shortened bus headways, expanded use of articulated buses, reserved bus lanes, express and limited-stop service, signalization improvements, and timed-transfer operations.

1.2.3. Build Alternatives

The six Build Alternatives generally use the same alignments; only a few segments have locations where different roadways would be used. The differences between the alternatives are more often the incorporation of design features, such as grade separation to avoid congested roadways or intersections.

Alternative 3: Low Investment BRT

The Low Investment BRT Alternative would primarily use existing streets to avoid the cost of grade separation and extensive reconstruction of existing streets. It would incorporate signal, signage, and lane improvements in certain places. This alternative would operate mostly in mixed lanes with at-grade crossings of all intersections and queue jump lanes at some intersections. Southbound along Kenilworth Avenue and westbound along Annapolis Road, Low Investment BRT would operate in dedicated lanes. This is the only alternative that would operate on Jones Bridge Road, directly serving the National Institutes of Health and the National

Naval Medical Center near Wisconsin Avenue and Jones Bridge Road. It is also the only alternative that would use the bus portion of the new Silver Spring Transit Center (SSTC). A detailed description of the alternative follows.

From the western terminus in Bethesda, Low Investment BRT would originate at the Bethesda Metro Station bus terminal. The alignment would operate on Woodmont Avenue within the existing curb. At the Bethesda Station, the buses would enter the station via Edgemoor Road and exit onto Old Georgetown Road.

At Wisconsin Avenue, just south of Jones Bridge Road, the transitway would remain on the west side of the road in exclusive lanes. Low Investment BRT would turn onto Jones Bridge Road where the transit would operate in shared lanes with queue jump lanes westbound at the intersection with Wisconsin Avenue and westbound for the intersection at Connecticut Avenue. Some widening would be required at North Chevy Chase Elementary School.

The alignment would continue along Jones Bridge Road to Jones Mill Road where it would turn right (south) onto Jones Mill Road. Eastbound on Jones Bridge Road would be a queue jump lane at the intersection. From Jones Mill Road, the alignment would turn east onto the Georgetown Branch right-of-way, where a new exclusive roadway would be constructed, with an adjacent trail on the south side.

Low Investment BRT would continue on the Georgetown Branch right-of-way, crossing Rock Creek Park on a new bridge, replacing the existing pedestrian bridge. The trail would also be accommodated on the bridge or on an adjacent bridge. A trail connection to the Rock Creek Trail would be provided east of the bridge. The alignment would continue on the Georgetown Branch right-of-way until the CSX corridor at approximately Kansas Avenue.

At this point, the alignment would turn southeast to run parallel and immediately adjacent to the CSX tracks on a new exclusive right-of-way. The trail would parallel the transitway, crossing the transitway and the CSX right-of-way east of Talbot Avenue on a new structure and continuing on the north side of the CSX right-of-way. The transitway would continue on a new roadway between the CSX tracks and Rosemary Hills Elementary School and continue past the school. The transitway would cross 16th Street at -grade, where a station would be located. The transitway would continue parallel to the CSX tracks to Spring Street where it would connect to Spring Street and turn to cross over the CSX tracks on Spring Street. The alignment would continue on Spring Street to 2nd Avenue where it would turn east. Buses would operate in shared lanes on Spring Street and Second Avenue.

Low Investment BRT would cross Colesville Road at-grade and continue up Wayne Avenue to Ramsey Street, where the buses would turn right to enter the SSTC at the second level.

The buses would leave the SSTC and return to Wayne Avenue via Ramsey Street. Low Investment BRT would continue east on Wayne Avenue in shared lanes. After crossing Sligo Creek Parkway, the alignment would operate in shared lanes.

At Flower Avenue, the alignment would turn left (south) onto Arliss Street, operating in shared lanes to Piney Branch Road. At Piney Branch Road, the alignment would turn left to continue in shared lanes to University Boulevard.

Low Investment BRT would follow University Boulevard to Adelphi Road. The lanes on University Boulevard would be shared. At Adelphi Road, the alignment would enter the University of Maryland campus on Campus Drive. The alignment would follow the Union Drive extension, as shown in the University of Maryland Facilities Master Plan (2001-2020), through what are currently parking lots. The alignment would follow Union Drive and then Campus Drive through campus in mixed traffic and the main gate to US 1.

Low Investment BRT would operate on Paint Branch Parkway to the College Park Metro Station in shared lanes. The alignment would then follow River Road to Kenilworth Avenue in shared lanes. Along Kenilworth Avenue, the southbound alignment would be a dedicated lane, but northbound would be in mixed traffic.

The alignment turns east from Kenilworth Avenue on East West Highway (MD 410) and continues in shared lanes on Veterans Parkway. This alignment turns left on Annapolis Road and then right on Harkins Road to the New Carrollton Metro Station. The westbound alignment on Annapolis would be dedicated, but the eastbound lanes would be shared.

Alternative 4: Medium Investment BRT

Alternative 4, the Medium Investment BRT Alternative, is, by definition, an alternative that uses the various options that provide maximum benefit relative to cost. Most of the segments are selected from either the Low or High Investment BRT Alternatives.

This alternative follows a one-way counter-clockwise loop from the Georgetown Branch right-of-way onto Pearl Street, East West Highway, Old Georgetown Road, Edgemoor Lane, and Woodmont Avenue and from there onto the Georgetown Branch right-of-way under the Air Rights Building. The buses stop at both the existing Bethesda Metro Station on Edgemoor Lane and at the new southern entrance to the Metro station under the Air Rights Building.

The alignment continues on the Georgetown Branch right-of-way with an aerial crossing over Connecticut Avenue and a crossing under Jones Mill Road.

This alignment, and all others that use the Georgetown Branch right-of-way, includes construction of a hiker-biker trail between Bethesda and the SSTC.

The alignment would continue on the Georgetown Branch right-of-way until the CSX right-of-way. The alignment would cross Rock Creek Park on a new bridge, replacing the existing pedestrian bridge. The trail would also be accommodated on the bridge or on an adjacent bridge. The alignment would continue on the Georgetown Branch right-of-way until the CSX corridor at approximately Kansas Avenue. This segment of the alignment, from Jones Mill Road to the CSX corridor, would be the same for all the alternatives.

As with Low Investment BRT, this alternative would follow the CSX corridor on the south side of the right-of-way, but it would cross 16th Street and Spring Street below the grade of the streets, at approximately the same grade as the CSX tracks. The station at 16th Street would have elevators and escalators to provide access from 16th Street.

After passing under the Spring Street Bridge, Medium Investment BRT would rise above the level of the existing development south of the CSX right-of-way. East of the Falklands Chase apartments, Medium Investment BRT would cross over the CSX tracks on an aerial structure to enter the SSTC parallel to, but at a higher level than, the existing tracks.

After the SSTC, Medium Investment BRT would leave the CSX right-of-way and follow Bonifant Street at-grade, crossing Georgia Avenue, and just prior to Fenton Street turn north toward Wayne Avenue. The alignment would continue on Wayne Avenue in shared lanes with added left turn lanes to Flower Avenue and then Arliss Street. At Piney Branch Road, the alternative would turn left into dedicated lanes to University Boulevard.

Medium Investment BRT would be in dedicated lanes on University Boulevard with an at-grade crossing of the intersections. The alignment would continue through the University of Maryland campus in dedicated lanes on Campus Drive and then continue at grade in a new exclusive transitway through the parking lots adjacent to the Armory and turns on to Rossborough Lane south of the Visitor's Center.

Crossing US 1 at grade, Medium Investment BRT would pass through the East Campus development on Rossborough Lane to Paint Branch Parkway. The alignment would continue on Paint Branch Parkway and River Road in shared lanes, as with Low Investment BRT. At Kenilworth Avenue, both lanes would be dedicated.

Turning left on East West Highway, Medium Investment BRT would be in dedicated lanes. As with Low Investment BRT, this alternative would travel in shared lanes on Veterans Parkway.

Medium Investment BRT would continue on Veterans Parkway to Ellin Road, where it would turn left into dedicated lanes to the New Carrollton Metro Station.

Alternative 5: High Investment BRT via Master Plan Alignment

The High Investment BRT Alternative is intended to provide the most rapid travel time for a BRT alternative. It would make maximum use of vertical grade separation and horizontal traffic separation. Tunnels and aerial structures are proposed at key locations to improve travel time and reduce delay. When operating within or adjacent to existing roads, this alternative would operate primarily in dedicated lanes. Like Medium Investment BRT, this alternative would serve the Bethesda Station both at the existing Bethesda bus terminal at the Metro station and at the new south entrance to the Metro station beneath the Apex Building.

High Investment BRT would follow a one-way loop in Bethesda from the Master Plan alignment onto Pearl Street, then travel west on East West Highway and Old Georgetown Road into the Bethesda Metro Station bus terminal, exit onto Woodmont Avenue southbound, and then

continue left under the Air Rights Building to rejoin the Georgetown Branch right-of-way. Elevators would provide a direct connection to the south end of the Bethesda Metro Station in the tunnel under the Air Rights Building.

High Investment BRT would be the same as Medium Investment BRT until it reaches the CSX corridor. As with the Low and Medium Investment BRT Alternatives, this alternative would follow the CSX corridor on the south side of the right-of-way, but it would cross 16th Street and Spring Street below the grade of the streets, at approximately the same grade as the CSX tracks. The station at 16th Street would have elevators and escalators to provide access from 16th Street.

The crossing of the CSX right-of-way would be the same as for Medium Investment BRT. From the SSTC, High Investment BRT would continue along the CSX tracks until Silver Spring Avenue, where the alignment would turn east entering a tunnel, passing under Georgia Avenue, and turning north to Wayne Avenue. The alignment would return to the surface on Wayne Avenue near Cedar Street. It would continue on Wayne Avenue in dedicated lanes, crossing Sligo Creek Parkway, and entering a tunnel approximately half-way between Sligo Creek and Flower Avenue, then turning east to pass under Plymouth Street, crossing under Flower Avenue, and emerging from the tunnel on Arliss Street.

High Investment BRT would be the same on Piney Branch Road and University Boulevard except that the alignment would have grade-separated crossings over New Hampshire Avenue and Riggs Road.

Approaching University of Maryland, the alignment would cross under Adelphi Road. After Adelphi Road, the alignment would follow Campus Drive and turn onto the proposed Union Drive extended. The alignment would enter a tunnel while on Union Drive, prior to Cole Field House, and pass through the campus under Campus Drive. After emerging from the tunnel east of Regents Drive, the alignment would be the same as Medium Investment BRT, until Paint Branch Parkway.

The alignment would continue east on Paint Branch Parkway in shared lanes to the College Park Metro Station. The alternative would then follow River Road in dedicated lanes.

From River Road near Haig Drive, the alignment would turn right and enter a tunnel heading south, roughly parallel to Kenilworth Avenue. Near East West Highway (MD 410), the alignment would turn left and continue in the tunnel under Anacostia River Park. The alignment would transition to a surface alignment west of the Kenilworth Avenue/East West Highway intersection. The alternative would follow East West Highway in dedicated lanes.

High Investment BRT would turn right down Veterans Parkway in dedicated lanes. Unlike Medium Investment BRT, this alignment would cross under Annapolis Road before continuing on to Ellin Road.

Alternative 6: Low Investment LRT

The Low Investment LRT Alternative would operate in shared and dedicated lanes with minimal use of vertical grade separation and horizontal traffic separation. All LRT Alternatives would serve only the south entrance of the Bethesda Station and would operate there in a stub-end platform arrangement.

Low Investment LRT would begin on the Georgetown Branch right-of-way near the Bethesda Metro Station under the Air Rights Building. The hiker-biker trail connection to the Capital Crescent Trail would not be through the tunnel under the Air Rights Building, but rather through Elm Street Park on existing streets. The terminal station would be the Bethesda Metro Station with a connection to the southern end of the existing station platform.

After emerging from under the Air Rights Building, the transitway would follow the Georgetown Branch right-of-way, crossing Connecticut Avenue at-grade and crossing under Jones Mill Road. Between approximately Pearl Street and just west of Jones Mill Road, the trail would be on the north side of the transitway; elsewhere it would be on the south side.

The segment from Jones Mill Road to Spring Street in the CSX corridor would be the same as for Low and Medium Investment BRT.

After crossing Spring Street, Low Investment LRT would be the same as the Medium and High Investment BRT Alternatives.

Low Investment LRT would be the same as Medium Investment BRT from the SSTC to Bonifant Street to Wayne Avenue.

Turning right, Low Investment LRT would continue at-grade on Wayne Avenue in shared lanes, crossing Sligo Creek Parkway and entering a tunnel from Wayne Avenue to pass under Plymouth Street. As with High Investment BRT, the alignment emerges from the tunnel on Arliss Street.

The Low Investment LRT Alternative would then follow Piney Branch Road and University Boulevard at-grade in dedicated lanes. In keeping with the low investment definition of this alternative, the major intersections of New Hampshire Avenue and Riggs Road would not be grade-separated.

As this alternative approaches Adelphi Road, the grade of the existing roadway is too steep for the type of LRT vehicles being considered. For this reason, the transitway would cross the intersection below grade.

At Adelphi Road, the alignment would enter the University of Maryland campus on Campus Drive. The alignment would follow the same alignment to the College Park Metro Station as described for Medium Investment BRT.

From the College Park Metro Station to the terminus at the New Carrollton Metro Station, Low Investment LRT would be in dedicated lanes on River Road. On Kenilworth Avenue, the LRT would be in a dedicated lane southbound, but a shared lane northbound. On East West Highway, the LRT would be in dedicated lanes with shared left turn lanes and in shared lanes under Baltimore-Washington Parkway. On Veterans Parkway, the LRT is in dedicated lanes.

As with Low Investment BRT, this alignment turns left on Annapolis Road from Veterans Parkway and then right on Harkins Road to the New Carrollton Metro Station. The segments on Annapolis Road and Harkins Lane would be dedicated.

Alternative 7: Medium Investment LRT

Medium Investment LRT is the same as Low Investment LRT from Bethesda to the CSX corridor, except that the alignment would cross over Connecticut Avenue.

Along the CSX corridor, the alignment would be the same as High Investment BRT, grade-separated (below) at 16th and Spring Streets. The alignment would be the same as Medium and High Investment BRT and Low Investment LRT from Spring Street through the SSTC.

From the SSTC, the alignment would follow Bonifant Street in dedicated lanes to Wayne Avenue. On Wayne Avenue, this alterative would be in shared lanes with added left turn lanes. The alignment would be the same as Low Investment LRT until Annapolis Road. The LRT would follow River Road, Kenilworth Avenue, East West Highway, and Veterans Parkway in dedicated lanes. At the intersection of Veterans Parkway and Annapolis Road the LRT continues across Annapolis, turning left at Ellin Road still in dedicated lanes.

Alternative 8: High Investment LRT

Alternative 8, High Investment LRT, would be the same as the High Investment BRT Alternative, except for the Bethesda terminus. The alignment would begin just west of the tunnel under the Air Rights Building. The hiker-biker trail would follow the alignment through the tunnel under the Air Rights Building. Because of physical constraints, the trail would be elevated above the westbound tracks. The trail would return to grade as it approaches Woodmont Avenue. The terminal station would be the Bethesda Metro Station with a connection to the southern end of the existing station platform.

1.2.4. Design Options

North Side of CSX

This design option is based on the Georgetown Branch Master Plan. From the eastern end of the Georgetown Branch right-of-way, the alignment would cross under the CSX corridor and then continue down the north side. It would emerge from the tunnel near Lyttonsville Road in Woodside. The alignment would be below the grade of 16th Street, passing under the bridge, but providing a station at that location. It would also pass under the Spring Street Bridge but would begin to rise on an aerial structure over the CSX right-of-way 1,000 feet northwest of Colesville Road due to the location of the Metro Plaza Building. The aerial structure over the CSX right-

of-way would provide the required 23-foot clearance from top of rail to bottom of structure. The alternative would enter the SSTC parallel to, but at a higher level than, the existing tracks.

South Side of CSX with a Crossing West of the Falklands Chase Apartments

This option would operate on the south side of the CSX, as described either at or below grade at 16th Street. The alignment would cross the CSX corridor between Spring Street and Fenwick Lane. This option would continue along the north side of the CSX right-of-way on an aerial structure over the CSX right-of-way 1,000 feet northwest of Colesville Road, due to the location of the Metro Plaza Building. The aerial structure over the CSX right-of-way would provide the required 23-foot clearance from top of rail to bottom of structure. The alternative would enter the SSTC parallel to, but at a higher level than, the existing tracks.

Silver Spring/Thayer Tunnel

This design option would begin at the SSTC where the alignment leaves the CSX corridor near Silver Spring Avenue. It would enter a tunnel on Silver Spring Avenue passing under Georgia Avenue and Fenton Street. At approximately Grove Street, the alignment would shift northward to continue under the storm drain easement and backyards of homes on Thayer and Silver Spring Avenues. The transitway would emerge from the tunnel behind the East Silver Spring Elementary School on Thayer Avenue and follow Thayer Avenue across Dale Drive to Piney Branch Road. If the mode selected were LRT, the grade of Piney Branch Road would require an aerial structure from west of Sligo Creek and Sligo Creek Parkway and would return to grade just west of Flower Avenue. This aerial structure requires that the road be widened. For this design option, a station would be located on Thayer Avenue where the alignment would emerge from the tunnel.

Preinkert/Chapel Drive

The Preinkert/Chapel Drive design option is being evaluated for both BRT and LRT through the campus of University of Maryland. The alignment would run from the west on Campus Drive turning right onto Preinkert Drive where it would head southeast. The transitway would turn left to pass directly between LeFrak Hall and the South Dining Campus Hall and then northeast through the Lot Y parking lot. From there, the alignment would run east along Chapel Drive between Memorial Chapel and Marie Mount Hall and eventually would pass to the south of Lee Building at Chapel Fields. The alignment would continue onto Rossborough Lane, passing directly north of Rossborough Inn to cross US 1, and continues east through the East Campus development.

1.2.5. Stations and Station Facilities

Between 20 and 21 stations are being considered for each of the alternatives. Table 1-1 provides the stations for each of the Build Alternatives.

Table 1-1: Stations by Alternative

Segment Name	Low Invest. BRT	Medium Invest. BRT	High Invest. BRT	Low Invest. LRT	Medium Invest. LRT	High Invest. LRT
Bethesda Metro, North Entrance	Yes	Yes	Yes	**N/A**	**N/A**	**N/A**
Medical Center Metro	Yes	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
Bethesda Metro, South Entrance	**N/A**	Yes	Yes	Yes	Yes	Yes
Connecticut Avenue	Yes	Yes	Yes	Yes	Yes	Yes
Lyttonsville	Yes	Yes	Yes	Yes	Yes	Yes
Woodside/16th Street	Yes	Yes	Yes	Yes	Yes	Yes
Silver Spring Transit Center	Yes	Yes	Yes	Yes	Yes	Yes
Fenton Street	Yes	Yes	**N/A**	Yes	Yes	**N/A**
Dale Drive	Yes	Yes	Yes	Yes	Yes	Yes
Manchester Road	Yes	Yes	Yes	Yes	Yes	Yes
Arliss Street	Yes	Yes	Yes	Yes	Yes	Yes
Gilbert Street	Yes	Yes	Yes	Yes	Yes	Yes
Takoma/Langley Transit Center	Yes	Yes	Yes	Yes	Yes	Yes
Riggs Road	Yes	Yes	Yes	Yes	Yes	Yes
Adelphi Road	Yes	Yes	Yes	Yes	Yes	Yes
University of Maryland Campus Center	Yes	Yes	Yes	Yes	Yes	Yes
US 1	Yes	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**
East Campus	**N/A**	Yes	Yes	Yes	Yes	Yes
College Park Metro	Yes	Yes	Yes	Yes	Yes	Yes
River Road	Yes	Yes	Yes	Yes	Yes	Yes
Riverdale Park	Yes	Yes	Yes	Yes	Yes	Yes
Riverdale Heights	Yes	Yes	Yes	Yes	Yes	Yes
Annapolis Road	Yes	Yes	Yes	Yes	Yes	Yes
New Carrollton Metro	Yes	Yes	Yes	Yes	Yes	Yes

The design of the Purple Line stations has not been determined at this stage of the project; however, the stations would likely include the following elements: shelters, ticket vending machines, seating, and electronic schedule information. The stations would be located along the transitway and would be on local sidewalks or in the median of the streets, depending on the location of the transitway. Because both the BRT and LRT vehicles under consideration are "low floor," the platforms would be about 14 inches above the height of the roadway. The platforms would be approximately 200 feet long and between 10 and 15 feet wide, depending on the anticipated level of ridership at each particular station. No new parking facilities would be constructed as part of the Purple Line. Municipal parking garages exist near the Bethesda and Silver Spring Metro Stations, and transit parking facilities exist at the College Park and New Carrollton Metro Stations.

Additional kiss-and-ride facilities would be considered at the stations at Connecticut Avenue on the Georgetown Branch right-of-way and Lyttonsville. The SSTC, College Park Metro Station, and New Carrollton Metro Station already have kiss-and-ride parking facilities available and the Purple Line would not add more. It has been determined that kiss-and-ride facilities are not needed at the Takoma/Langley Transit Center.

1.2.6. Maintenance and Storage Facilities

LRT and BRT both require maintenance and storage facilities; however, the requirements in terms of location and size are not the same. LRT requires a facility located along the right-of-way while a BRT facility can be located elsewhere. Depending on the construction phasing and mode chosen, two maintenance facilities (one in Montgomery County and one in Prince George's County) are ideal.

The size of the facility depends on the number of vehicles required. A fleet of 40 to 45 LRT vehicles or 40 to 60 buses (including spares) would require approximately 20 acres. The Purple Line would also require storage for non-revenue vehicles and equipment such as: maintenance, supervisory, and security vehicles.

Activities at the maintenance facility would include:

- Vehicle Storage area (tracks for LRT)
- Inspection/Cleaning
- Running Repairs
- Maintenance/Repair
- Operations/Security
- Parking
- Materials/Equipment Storage

Two sites improve operations by providing services and storage near the ends of the alignment. It is possible to have one site provide the majority of the services and the other function as an auxiliary site.

Five potential sites were identified during the course of the alternatives analysis and were evaluated for environmental impacts. As part of the screening process three were eliminated from further consideration. These five sites are listed below:

- Lyttonsville – This is a maintenance facility on Brookville Road in Lyttonsville, currently used by Montgomery County Ride On buses and school buses. The Purple Line would require the use of some additional adjacent property.
- Haig Court – This site is located on River Road at Haig Court. It would require minimal grading, but is partly wooded, and is very close to the residential neighborhood of Riverdale which is also a historic district.
- North Veterans Parkway – This site is located on the north side of Veterans Parkway. This site is heavily wooded and includes steep grades.
- Glenridge Maintenance Facility – This site is located on the south side of Veterans Parkway near West Lanham Shopping Center. It is currently being used as a maintenance facility for Prince George's County Park vehicles.

- MTA New Carrollton property – This site is a parcel owned but the MTA on the east side of the New Carrollton Metro station. It is not particularly well located for use by the Purple Line because it would require the Purple Line to pass under or around the New Carrollton Metro Station.

The Lyttonsville site and the Glenridge Maintenance Facility were identified as the two sites most appropriate for maintenance and storage facilities for the project based on potential environmental effects and location. These two sites would provide sufficient capacity for either BRT or LRT operations; and are well located near either end of the alignment.

1.2.7. Traction Power Substations

Light rail's electric traction power system requires electrical substations approximately every 1.25 miles, depending on the frequency and size of the vehicles. These substations, which are approximately 10 feet by 40 feet, do not need to be immediately adjacent to the tracks. This flexibility means the substations can be located to minimize visual intrusions and can be visually shielded by fencing, landscaping, or walls, or can be incorporated into existing buildings. The number and location of these substations will be determined during the preliminary engineering phase of project development.

2. Archeological Assessment

At the time of the Phase Ia Archeological Assessment Survey, the final project alignment was still under consideration. Given the cumulative linear extent and the stage of the project at the time of the survey, it was deemed prudent to conduct a systematic archeological assessment study in order to acquire a comprehensive understanding of the archeological sensitivity of the corridor. This survey was also performed to provide information that could assist with project planning. The primary purposes of the Phase Ia Archeological Assessment Survey are:

- to develop a comprehensive overview of the archeological context and sensitivity of the corridor which can be applied toward project planning activities
- to establish an foundation for additional archeological studies that may be warranted upon selection of the Locally Preferred Alternative

The Phase Ia Archeological Assessment Survey was conducted in winter 2007 - 2008. This survey was performed in compliance with the Acts, Order, and Regulation:

- National Historic Preservation Act of 1966, Section 106, as amended;
- Section 101(b)(4) of the National Environmental Policy Act of 1969;
- Section 1(3) and 2(b) of Executive Order 11593;
- Section 4(f) of the United States Department of Transportation Act of 1966;
- Advisory Council on Historic Preservation Implementing Regulations 36 CFR Part 800 - Historic Properties (as amended);
- Maryland Environmental Policy Act of 1973 (as amended), and the
- Maryland Historical Trust Act of 1985, as amended, State Finance and Procurement Article §§ 5A-325 and 5A-326 (formerly Article 83B) of the Annotated Code of Maryland.

The Phase Ia Archeological Assessment Survey was performed in accordance with the protocols as established by:

- MHT's Standards and Guidelines for Architectural and Historical Investigations in Maryland (2000)
- MHT's Standards and Guidelines for Archeological Investigations in Maryland (Shaffer and Cole 1994)
- Archeology and Historic Preservation: The Secretary of the Interior's Standards and Guidelines (FR 48:44716-44742) (Sept. 1983)

2.1. Establishment of the Area of Potential Effect

Pursuant to federal regulations for the Protection of Historic Properties, 36 CFR Part 800.16(d), the Area of Potential Effect (APE) is defined as the "geographical area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."

Using relevant project materials and observations made during inspection of the corridor, an archeological APE that encompasses an area where effects related to the project could reasonably be expected to occur was established in consultation with the MHT.

For archeological resources, the APE was determined to consist of lands where the proposed project would result in the disturbance of existing land surfaces. Based on reviews of preliminary design schemes, the area within 250 feet on both sides of the centerline of the proposed alignments was defined as the APE for the purposes of the Phase Ia Archeological Assessment Survey. .

This APE was recommended with the understanding that upon the selection of a Locally Preferred Alternative, the APE would be revised accordingly in consultation with the MHT to address the specific location and definition of the Locally Preferred Alternative.

3. Environmental Setting

The APE falls within Maryland Archeological Research Units (MARU) Number 12 and Number 11. The Potomac Drainage (MARU 12) and the Riverine Potomac Drainage (MARU 11) are located in both the Eastern Piedmont and Coastal Plain physiographic provinces of Maryland (Figure 3-1 and Figure 3-2).

3.1. Geological Setting

From east to west, the APE crosses two physiographic provinces, the Coastal Plain and the Eastern Piedmont. The western portion of the APE in Montgomery County falls within Maryland's Eastern Piedmont, whereas the Prince George's County portion of the APE falls entirely within Maryland's Coastal Plain Province. The Fall Line, which is the boundary between the Coastal Plain and the Piedmont physiographic provinces, runs just east of the Montgomery and Prince George's County line.

The general vicinity of the Fall Line, often referred to as the fall zone, is of geological interest because it marks the change between the rolling hills of the Piedmont and the flat terrain of the Coastal Plain. Cobble beds, deposited by streams flowing across the boundary, are scattered throughout the fall zone. In most of Maryland, this transitional area closely coincides with I-95.

The Coastal Plain is characterized by gently rolling to nearly level sandy plains. Numerous interior tidal freshwater swamps that drain into saltwater marshes toward the shoreline are also present throughout the Coastal Plain. In general, drainage in the Coastal Plain is relatively poor. Soils of the Coastal Plain consist of fine sands and loams that are underlain by unconsolidated deposits of quarternary, tertiary, and cretaceous silts, sands, clays, and marls. Maryland's Coastal Plain is part of a larger physiographic province, which is divided into various sections. The Coastal Plain spans much of the eastern seaboard of the United States and encompasses Maryland's Western and Eastern Shores.

Like Maryland's Coastal Plain, the Eastern Piedmont is part of a larger Piedmont physiographic zone that embodies the foothills of the Appalachian Mountains. In its entirety, the Piedmont consists of a 1000-mile long stretch of land that extends from New York to Alabama. At its widest, located toward its southern end, the Piedmont measures roughly 125 miles across. The Piedmont physiographic zone of the eastern United States is divided into several sections. Maryland's Piedmont is two-part, with eastern and western sections. The Eastern Piedmont is also often referred to as the Piedmont Uplands.

Overall, the Piedmont is comprised of various igneous and metamorphic rocks. Generally, differences between subsections of the Piedmont are defined by geologic histories, geographic development, and topographic characteristics. For example, bedrock of the Eastern Piedmont is primarily composed of gneiss, schists, gabbros, as well as other highly metamorphosed sedimentary and igneous rocks of probable volcanic origin. In contrast, the bedrock of the Western Piedmont tends to be more diverse and includes slates, marbles, and assorted moderately to slightly metamorphosed volcanic rocks.

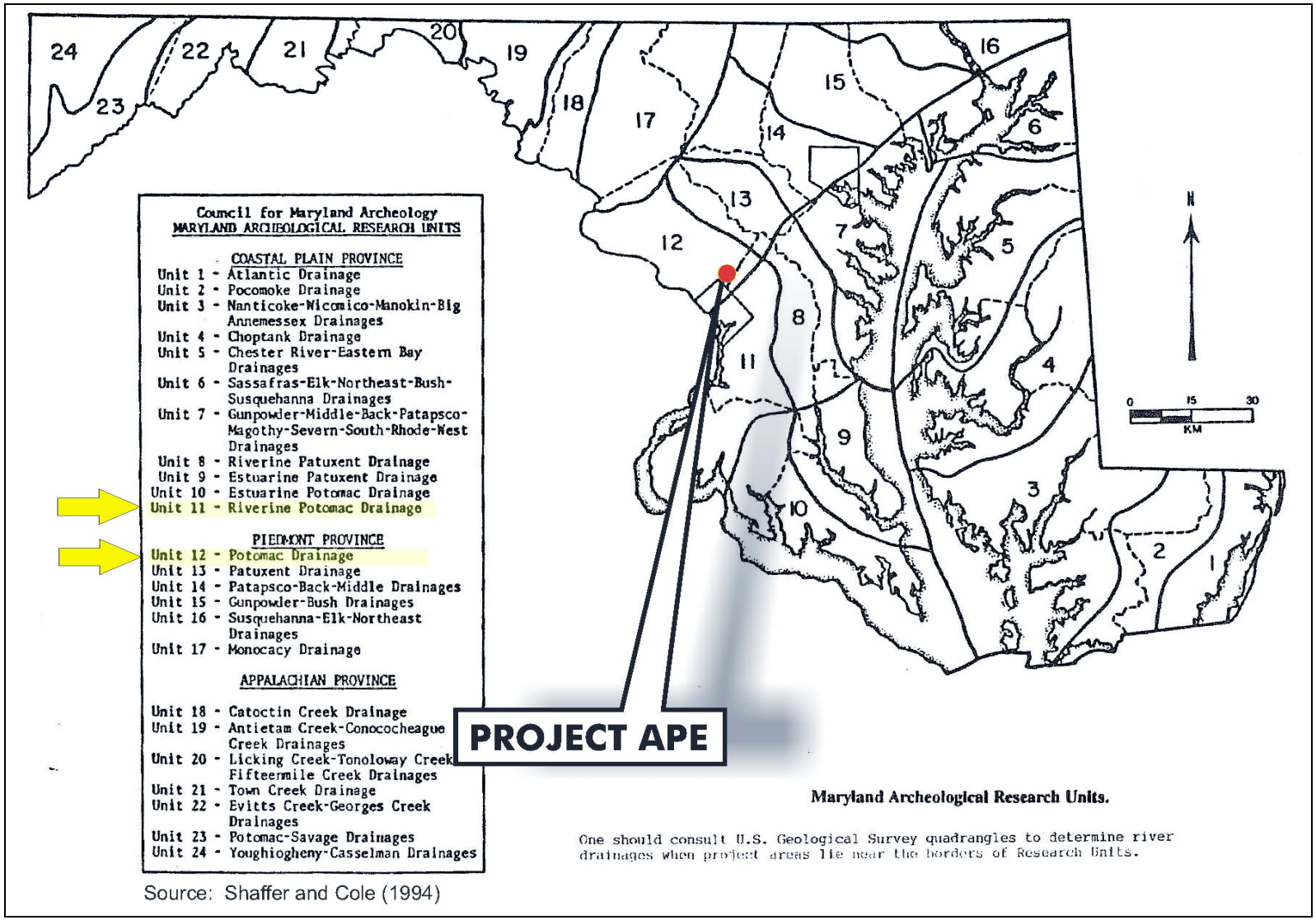

Council for Maryland Archeology
MARYLAND ARCHEOLOGICAL RESEARCH UNITS
COASTAL PLAIN PROVINCE
Unit 1 - Atlantic Drainage
Unit 2 - Pocomoke Drainage
Unit 3 - Nanticoke-Wicomico-Manokin-Big Annemessex Drainages
Unit 4 - Choptank Drainage
Unit 5 - Chester River-Eastern Bay Drainages
Unit 6 - Sassafras-Elk-Northeast-Bush-Susquehanna Drainages
Unit 7 - Gunpowder-Middle-Back-Patapsco-Magothy-Severn-South-Rhode-West Drainages
Unit 8 - Riverine Patuxent Drainage
Unit 9 - Estuarine Patuxent Drainage
Unit 10 - Estuarine Potomac Drainage
Unit 11 - Riverine Potomac Drainage
PIEDMONT PROVINCE
Unit 12 - Potomac Drainage
Unit 13 - Patuxent Drainage
Unit 14 - Patapsco-Back-Middle Drainages
Unit 15 - Gunpowder-Bush Drainages
Unit 16 - Susquehanna-Elk-Northeast Drainages
Unit 17 - Monocacy Drainage
APPALACHIAN PROVINCE
Unit 18 - Catoctin Creek Drainage
Unit 19 - Antietam Creek-Conococheague Creek Drainages
Unit 20 - Licking Creek-Tonoloway Creek-Fifteenmile Creek Drainages
Unit 21 - Town Creek Drainage
Unit 22 - Evitts Creek-Georges Creek Drainages
Unit 23 - Potomac-Savage Drainages
Unit 24 - Youghiogheny-Casselman Drainages
PROJECT APE
N
0 15 30
KM
Maryland Archeological Research Units.
One should consult U.S. Geological Survey quadrangles to determine river drainages when project areas lie near the borders of Research Units.
Source: Shaffer and Cole (1994)

Figure 3-1: Maryland Archeological Research Units (MARU)

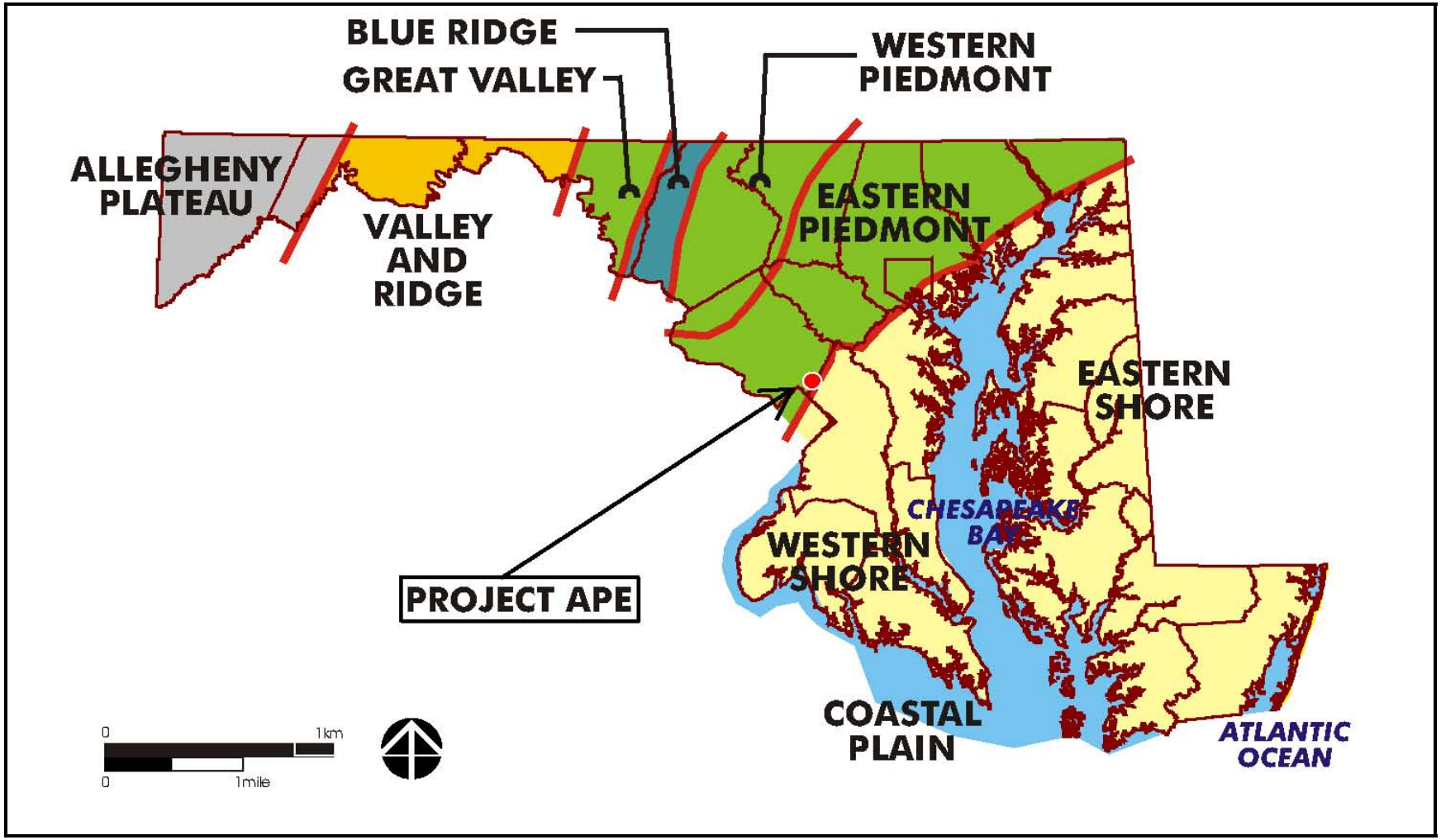


Figure 3-2: Physiographic Provinces of Maryland

The Eastern Piedmont is characterized by narrow and deep stream walls with assorted isolated knolls that rise above the upland level. Unlike other portions of the state, few large tributaries are contained within the Eastern Piedmont. Waterways of the Piedmont Uplands tend to consist of assorted low-order tributaries, and overall, large floodplains are uncommon. Aside from poorly-drained floodplains of tributaries and occasional patches in upland flats, soils of the Eastern Piedmont are well-drained (Custer 1989, 1996; Robichard and Buell 1973). Along the slopes of the Eastern Piedmont, erosional processes have been accelerated by agricultural activities. As a result, the various floodplains and low lying terraces within the Eastern Piedmont are mantled with thick deposits of historic alluvium.

3.2. General Soil Descriptions

The APE contains 47 soil types and more than 23 different soil series that span the Piedmont and Coastal Plain regions of Maryland. Ten of these soils are identified as urban in nature, meaning that they are mixed fills in developed areas. The bulk of the soil types are located on upland landforms. Floodplain soils within the study area include those of the Bibb, Codorus, Hatboro, and Iuka Series. As a whole, these soils indicate both how diverse the soils are within the study areas and the high level of disturbances caused by suburban development and previous roadway construction. The soil types are shown in Table 3-1 and Figure 3-3.

Table 3-1: Soil Types within APE

Soil Type	Percent Slope	Topographic Setting
Beltsville Silt Loam (BIA)	0-2	Coastal Plain Uplands
Beltsville Fine Sandy Loam (BeB2)	2-5	Coastal Plain Uplands
Bibb Silt Loam (Bo)	-	Coastal Plain Floodplains
Brinklow-Blocktown Channery Silt Loam	5-25	Piedmont Uplands
Chillum-Urban Land Complex (CbB)	0-6	Coastal Plain Uplands
Chillum-Urban Land Complex (CbC)	6-12	Coastal Plain Uplands
Christiana Fine Sandy Loam (CdB2)	2-5	Coastal Plain Uplands
Christiana Fine Sandy Loam (CdD2)	5-10	Coastal Plain Uplands
Christiana Clay (CcC3)	5-15	Coastal Plain Uplands
Christiana-Urban Land Complex (CfB)	0-5	Coastal Plain Uplands
Codorus Silt Loam (Ch)	0-3	Piedmont Floodplains
Codorus-Urban Land Complex (Ck)	-	Piedmont Floodplains
Elkton Silt Loam (Ek)	-	Coastal Plain Uplands
Elsinboro Sandy Loam (EnA)	0-2	Coastal Plain Uplands
Elsinboro-Urban Land Complex (EuB)	0-5	Coastal Plain Uplands
Gaila Silt Loam	3-8	Coastal Plain Uplands
Gaila Silt Loam	8-15	Coastal Plain Uplands
Gaila-Urban Land Complex	0-8	Piedmont Uplands
Glenelg Silt Loam (GhB2)	3-8	Piedmont Uplands
Glenelg Silt Loam (GhC2)	8-15	Piedmont Uplands
Glenelg-Urban Land Complex (GoB)	0-8	Piedmont Uplands
Glenelg-Urban Land Complex	8-15	Piedmont Uplands
Hatboro Silt Loam (Ha)	-	Coastal Plain/Piedmont Floodplains
Iuka Silt Loam, local alluvium (IoA)	0-2	Coastal Plain Floodplains

Table 3-1: Soil Types within APE

Soil Type	Percent Slope	Topographic Setting
Iuka, local alluvium-Urban Land Complex (Ix)	-	Coastal Plain Floodplains
Keyport Fine Sandy Loam	0-2	Coastal Plain Uplands
Keyport Fine Sandy Loam (KeC2)	5-10	Coastal Plain Uplands
Keyport Silt Loam (KpB2)	2-5	Coastal Plain Uplands
Keyport Silt Loam (KpC2)	5-15	Coastal Plain Uplands
Leonardtown Silt Loam (LeA)	0-2	Coastal Plain Uplands
Mattapex-Urban Land Complex (MvB)	0-5	Coastal Plain Uplands
Muirkirk Loamy Sand (MzB2)	0-5	Coastal Plain Uplands
Sandy and Clayey Land (ScB)	-	Coastal Plain Uplands
Sandy and Clayey Lands, sloping (ScC)	-	Coastal Plain Uplands
Sassafras-Urban Land Complex (SkB)	0-5	Coastal Plain Uplands
Silty and Clayey Land, sloping (SpC)	-	Misc. Land Type
Silty and Clayey Land, steep (SpE)	-	Misc. Land Type
Sunnyside Fine Sandy Loam (StC2)	5-10	Coastal Plain Uplands
Sunnyside Fine Sandy Loam (StD2)	10-15	Coastal Plain Uplands
Sunnyside Fine Sandy Loam (StE)	15-30	Coastal Plain Uplands
Sunnyside Sandy Clay Loam (SvC3)	5-10	Coastal Plain Uplands
Sunnyside Sandy Clay Loam (SvD3)	10-15	Coastal Plain Uplands
Sunnyside-Urban Land Complex (SwB)	0-5	Coastal Plain Uplands
Sunnyside-Urban Land Complex (SwC)	5-15	Coastal Plain Uplands
Urban Land-Wheaton Complex	-	Coastal Plain/Piedmont
Urban Land	-	Coastal Plain/Piedmont
Woodstown Sandy Loam (WoA)	0-2	Coastal Plain Uplands

Source: Brown and Dyer 1995; Kirby et al. 1967

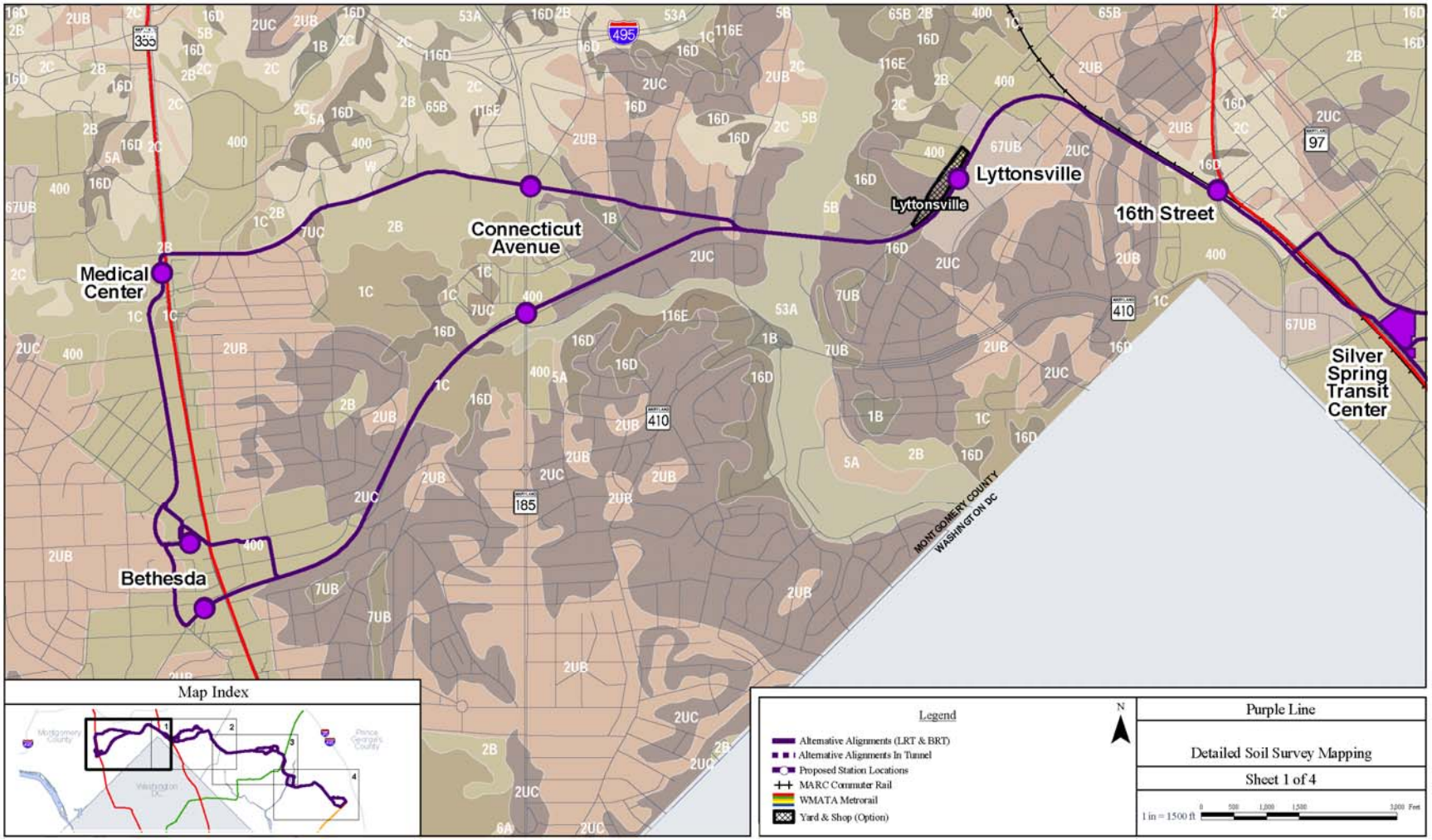


Figure 3-3: Environmental Setting of the APE

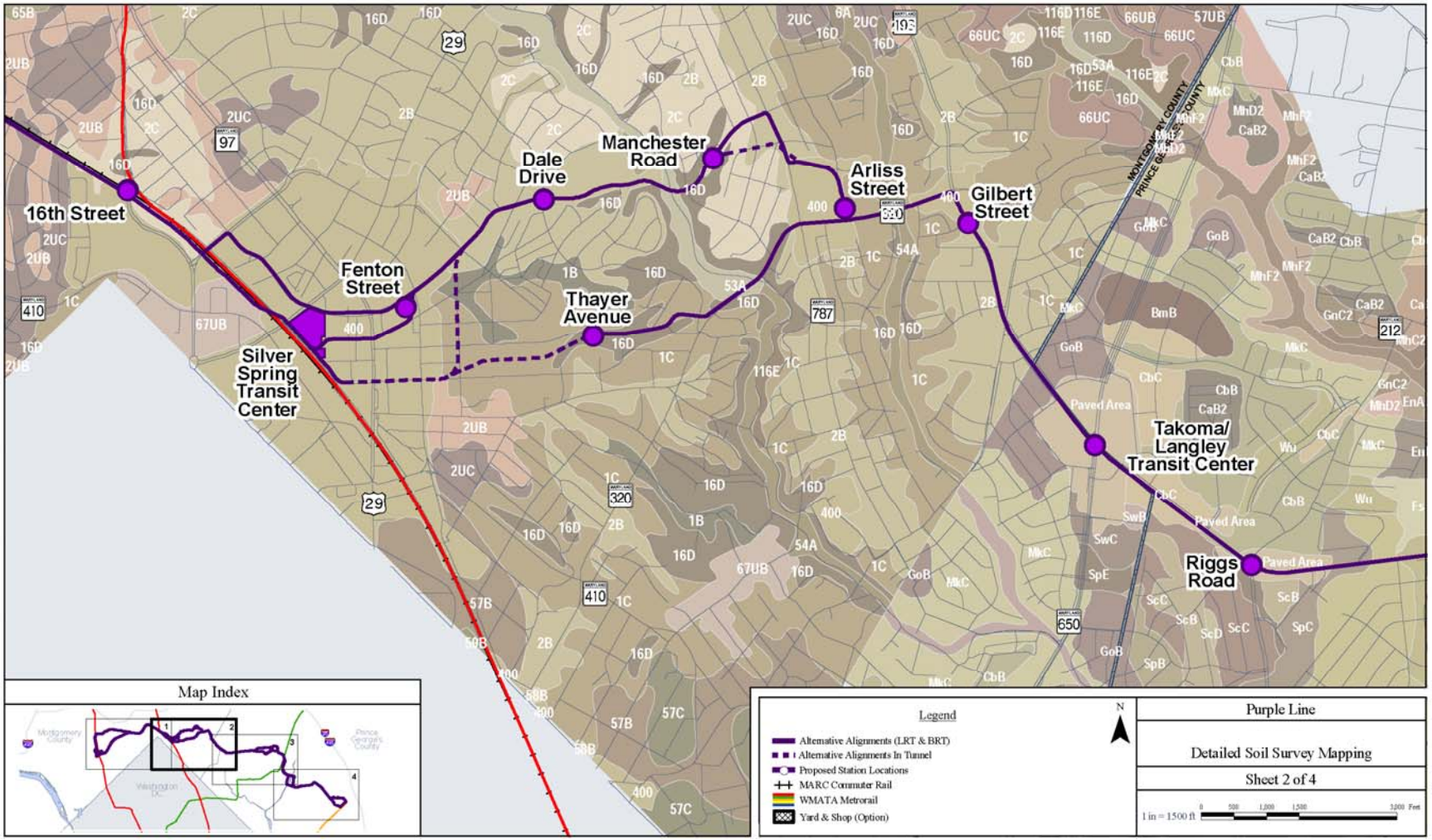


Figure 3-3: Environmental Setting of the APE (continued)

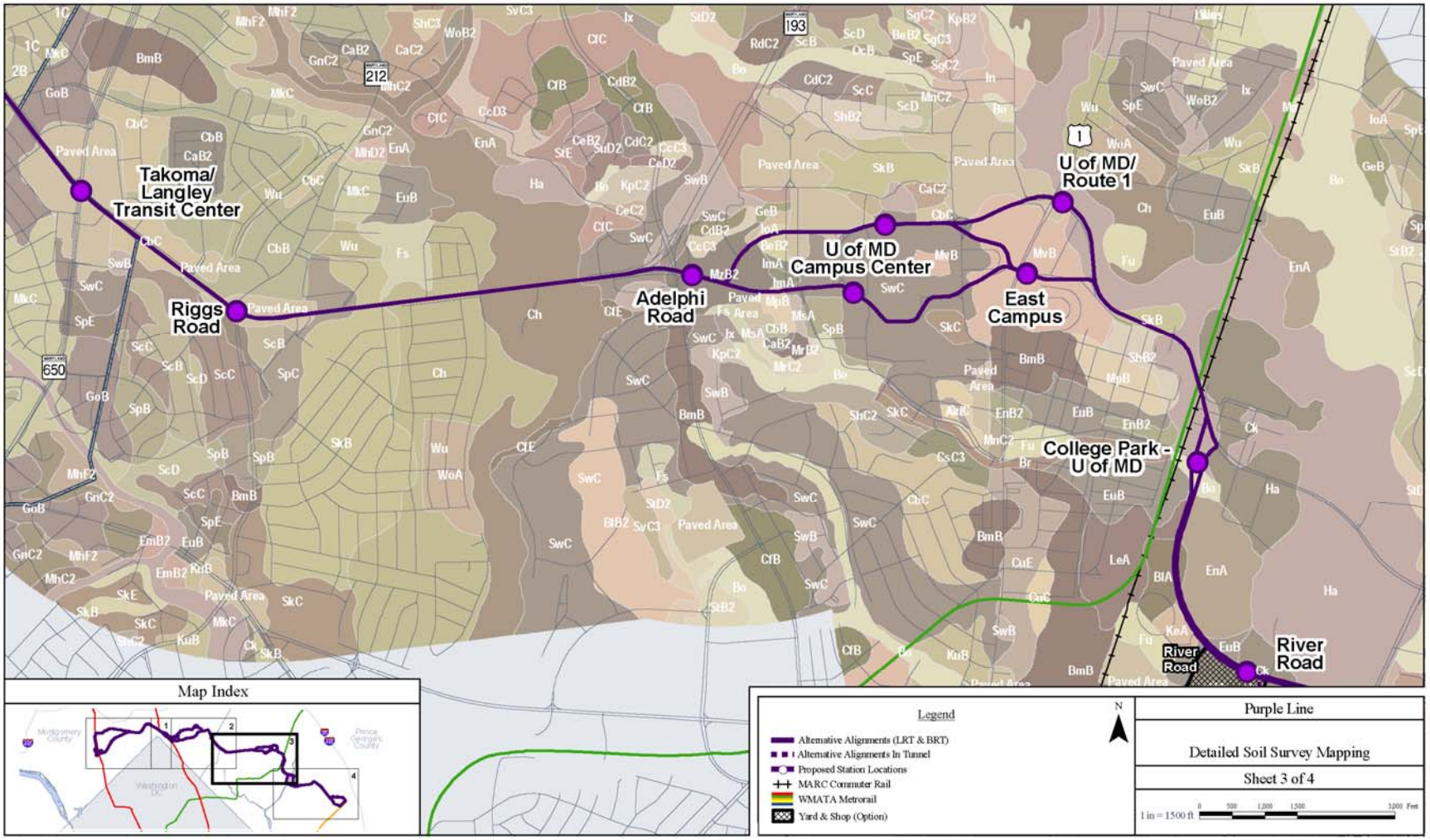


Figure 3-3: Environmental Setting of the APE (continued)

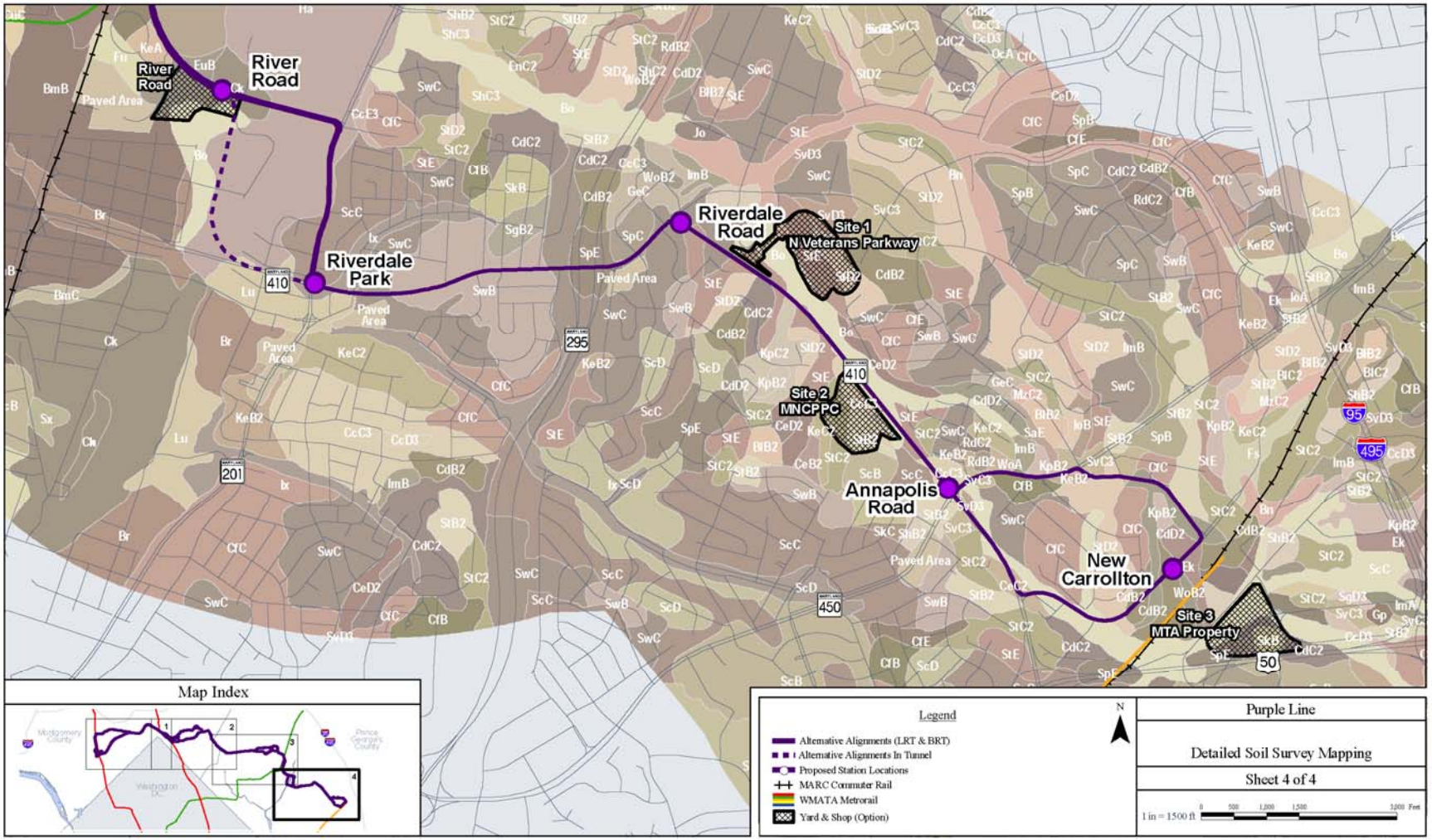


Figure 3-3: Environmental Setting of the APE (continued)

3.3. Project Setting

The APE falls within an urban/suburban setting that has undergone extensive landscape alteration since the late nineteenth to early twentieth century. Intensive residential, commercial, and industrial development has been recurrent throughout the project area/corridor/region. The construction and improvements of local roadways have also significantly altered the landscape.

The transition from Coastal Plain to the Piedmont is apparent in the topography of the APE. In the east, the APE crosses various low-lying areas with very little relief to gently rolling uplands. The Purple Line corridor crosses five drainages including from west to east, Rock Creek, Sligo Creek, Long Branch Creek, Northwest Branch, and the Northeast Branch.

Most of the land crossed by the APE consists of a mix of assorted suburban commercial, residential, and industrial properties along existing roadways. Although most of the roadside edges of the properties within the APE are paved, occasional stretches of unpaved ground surface can also be also found. Undeveloped areas include vacant lots, county parklands, and well-maintained landscaped patches. Within areas of greater development, unpaved surfaces include front yard areas of residential properties as well as the peripheries of undeveloped woodlots that abut the roadways.

4. Regional Prehistory

The prehistory of the Middle Atlantic region is divided into three distinct time periods; the Paleo-Indian Period (circa 12,000 B.C.E. - 8,000 B.C.E.), the Archaic Period (circa 8,000 B.C.E. – 1,000 B.C.E.), and the Woodland Period (circa 1,000 B.C.E. - 600 C.E.). Similarities and differences regarding subsistence strategies, settlement patterns, paleoenvironments, and technologies serve as criteria for defining these time periods.

In consideration of these criteria, Early, Middle, and Late sub-periods have frequently been identified within the Archaic and Woodland Periods. Often these sub-periods serve as a basis in better understanding the gradual transition from one time period to another. The following discussion of the regional prehistory of Maryland represents a summary based on comprehensive regional prehistoric archeological research, specifically Beckermann (1993); Steponaitis (1983); Wanser (1981); Davidson (1981); Pogue and Smolek (1985); and Custer (1983, 1984, 1986, 1989, 1994, 1996). While it is important to note that the transition from one time period to another is a gradual process and often varies from one environmental setting to another, the regional prehistory of the area can be divided into four specific time spans; the Paleo-Indian/Early Archaic Period (circa 12,000 B.C.E. - 8,000 B.C.E.), the Middle Archaic Period (circa 6,500 B.C.E. - 3,000 B.C.E.), the Late Archaic/Early-Middle Woodland Periods (circa 3,000 B.C.E. - 1000 C.E), and the Late Woodland Period (circa 1000 C.E.- 1600 C.E.). A fifth time period, the Initial European Contact and Settlement Period (1600 C.E. - 1645 C.E.), which focuses on the interaction of Native American populations with arriving European groups during the historic Contact and Settlement Period (1608 C.E.- 1770 C.E.), will also be presented in this discussion because it marks the beginning of the decline of prehistoric lifeways in the Middle Atlantic region.

4.1. Paleo-Indian (circa 12,000 B.C.E. - 8,000 B.C.E.)/Early Archaic (circa 8,500 B.C.E. - 6,500 B.C.E.) Period

The Paleo-Indian Period begins at the end of the Pleistocene and ends with the onset of the Holocene. This transition between the Pleistocene and Holocene is marked by a change from cold glacial conditions to alternating wet and dry climates. The adaptations made by prehistoric populations to these fluctuating conditions characterize the Paleo-Indian Period. Paleo-Indian populations practiced a hunter-gatherer subsistence with animal resources comprising much of their diet. Several cold-weather faunal species such as the now-extinct mastodon, the since-migrated moose, as well as smaller, still present species, such as white-tailed deer, were supported by the various deciduous, boreal, and grassland environments that were once found in the Mid-Atlantic region (Custer 1983, 1989; Marshall 1982).

Overall, throughout the time span of the Paleo-Indian/Early Archaic Period, settlement patterns remain relatively consistent. Nomadic groups, comprised of multiple or single family bands that focused on attractive hunting locales such as watering holes, have been hypothesized (Custer 1983, 1986, 1989, 1996). Throughout the Mid-Atlantic region, identified Paleo-Indian/Early

Archaic site types have included quarry sites, hunting sites, base camps, and various types of associated support sites (Custer 1983, 1986, 1989, 1996).

Paleo-Indian tool kits reflect an emphasis on the procurement and processing of animal resources. Preferences for high-quality lithic materials, such as chert and jasper, are apparent in lithic artifact assemblages recovered from Paleo-Indian sites. In addition, stone tools in these artifact assemblages show evidence of great care in stone tool maintenance and resharpening. One of the most distinctive artifacts associated with the Paleo-Indian Period is the fluted point, characterized by a channel that is removed from the center of the base to the center, or distal end, of the point.

One of the best known Paleo-Indian sites in the Chesapeake region is the Williamson Site, located on the western edge of Virginia's Inner Coastal Plain in Dinwiddie County. Since its discovery in 1949, the Williamson Site has been subjected to extensive research (McCary 1983; Callahan 1979; McAvoy 1992). In addition to debitage, the site has yielded 175 fluted bifaces and assorted scrapers, spokeshaves, preforms, drills, gravers, perforators, wedges, denticulates, beaks, hammerstones, and anvils (Callahan 1979; McCary 1983; Dent 1995). The majority of the knapped artifacts are made from locally available Cattail Creek Chalcedony (a chert). Based on excavation results, it is believed that the site was subjected to recurrent use throughout the Paleo-Indian Period (Dent 1995).

Although fluted points have been recovered throughout Maryland, many of these artifacts tend to represent isolated surface finds (Steponaitis 1983; Dent 1995). Nonetheless, two archeological sites, the Paw Paw Cove Site and the Higgins Site provide some insight on the Paleo-Indian Period of Maryland.

The Paw Paw Cove Site is located on the eastern shore of Maryland in Talbot County. Once situated in an upland-type setting at the headwaters of two small tributaries, the site currently lies at the edge of the Chesapeake Bay due to severe erosion (Lowery 1989, 1990). Although most of the site's artifact assemblage was recovered from eroded and surface contexts along the shoreline, recent excavations have revealed that more interior portions of the site away from the strand line still contain intact buried deposits (Lowery 1989, 1990).

Located in the Inner Coastal Plain on the Western Shore in Anne Arundel County, the multi-component Higgins Site (18AN489) encompasses an upland promontory that rises above two small drainages. Excavations at the Higgins Site have resulted in the identification of intact Paleo-Indian archeological deposits. Artifacts recovered from these deposits include several fluted (Clovis) point fragments, various flake tools, and debitage. It has been concluded that during the Paleo-Indian Period, the Higgins Site served as a small, short-term campsite where game was processed (Ebright 1994).

A third site, the Pierpoint Site, also promises to contribute insightful information on Maryland's Paleo-Indian Period. Excavations and surface collection at this site located at the confluence of the Potomac River and Seneca Creek, have yielded several fluted points. A comprehensive analysis of the site is ongoing (Dent 1995).

Despite the limited data regarding the extent of Paleo-Indian habitation in Maryland, fluted points found throughout the state do indicate use of the region during this early time period (Steponaitis 1983; Custer 1983; Davidson 1981). Archeological research of the Paleo-Indian Period in the Middle Atlantic region has suggested various operational site types of the Paleo-Indian Period. Hypothesized site types range from small hunting camps to large sites associated with lithic material procurement activities (Dent 1995; Marshall 1982; Bonfiglio and Cresson 1982; Custer 1989).

For the most part, as is apparent by the coincidence of Paleo-Indian and Early Archaic occupations at various sites, Early Archaic sites seem to occur in similar environmental settings and exhibit many characteristics attributed to known Paleo-Indian Period sites (Watson and Custer 1990; Dent 1995). While similarities in the overall tool assemblages are apparent, Early Archaic point assemblages are marked by the introduction of side- and corner-notched projectile points. Regionally, the Early Archaic Period may represent minor adaptive shifts responsive to the rising emergence of Holocene environments toward the end of the Paleo-Indian/Early Archaic Period.

Aside from small occupations at some of the larger multi-component sites, such as the Higgins Site, few Early Archaic Period occupations in Maryland have been subjected to thorough investigation.

One of the more studied Early Archaic sites of Maryland is the Crane Point Site in Talbot County (Lowery and Custer 1990). Located on a small point that juts out into the Chesapeake Bay just east of the mouth of a small stream, the site contains several Late Paleo-Indian/Early Archaic occupations. Studies suggest that at the time of its use, the site fell within a more interior, upland knoll-type setting that was flanked with assorted freshwater wetlands. Systematic surface collection along the Crane Point beach line and test excavations at the site have yielded over 500 lithic artifacts. In addition to debitage, these artifacts include various projectile points, bifaces, cores, and flake and ground stone tools. Flake tools from the site include a diversity of scrapers, slug-shaped unifaces, gravers, denticulates, and wedges. Point types from the site include assorted Dalton/Hardaway, Amos, Charleston, and Kirk/Palmer notched variants. Flotation samples processed from an eroding hearth feature at the site yielded Amaranth and Chenopodium seeds and hickory nut and butternut fragments (Lowery and Custer 1990). Based on the excavation results, the Crane Point Site has been concluded to be the remains of a base camp (Lowery and Custer 1990).

One of the state's notable Early Archaic occupations has been documented at the multi-component Indian Creek V Site (18PR94), which occupies a broad floodplain adjacent to the confluence of Indian and Beaver Dam Creeks (Leedecker and Holt 1991).

4.2. Middle Archaic Period (6,500 B.C.E. - 3,000 B.C.E.)

Several adaptive strategies of prehistoric human populations to the emergence of stable Holocene environments define the Middle Archaic Period. By 6,500 B.C.E., mesic forests of hemlock and oak flourished in the Coastal Plain of Maryland (Custer 1983, 1989). Reduction of open

grasslands forced the extinction or migration of many of the cold weather browsing megafauna that were critical to the subsistence of Paleo-Indian Period groups. In addition, rises in sea level created interior swamp, marsh, and estuarine environments. These new environments supported a wide variety of floral and faunal species such as deer, migratory waterfowl, anadromous fish, and both fresh- and salt-water shellfish (Custer 1983, 1986, 1989). Consequently, Middle Archaic populations began to take advantage of the availability of these new resources. Overall, the Middle Archaic Period is characterized by a noticeable shift from a hunter-gather strategy to a foraging subsistence.

Middle Archaic tool kits in the region also reflect a more generalized foraging subsistence. Unlike the specialized hunting Paleo-Indian tool kits, Middle Archaic tool kits often include plant processing tools, such as mortars and pestles, and ground stone tools, including adzes, axes, and spearthrower weights. The appearance of these tool types is indicative of a greater dependence on plant resources (Custer 1983, 1989). Like their predecessors, Middle Archaic groups were also nomadic; however, these groups migrated throughout the area to take advantage of the broad range of environmental settings and resources on a seasonal basis. Growth and reduction of group size also occurred seasonally.

Common point types of the Middle Archaic Period are bifurcate-based point types such as St. Albans, LeCroy, and Kanawha (Dent 1995; Custer 1984, 1994). Other Middle Archaic projectile points include Stanly, Morrow Mountain, Guilford, and Neville types (Dent 1995; Custer 1984, 1994).

Throughout the eastern United States, Middle Archaic sites tend to be found in a variety of riverine, lacustrine, and coastal settings. In Maryland, the Middle Archaic Period also marks notable increases in use of interior wetland settings, such as upland swamps, interior ridgetops, ponds, marshes, and springheads, and settings near stream junctures and along tributary floodplains (Gardner 1987; Wall 1990, Stewart 1989; Steponaistis 1983; Rappleye and Gardner 1979). These environments often contain a diversity of Middle Archaic site types that range from small processing or procurement sites to base camps of various sizes (Custer 1983, 1989, 1996).

While many of the larger multi-component sites date predominately to later periods, these sites often contain Middle Archaic occupations. Middle Archaic components have been encountered at the aforementioned Higgins Site and at the Surratts Road Site (36PR404), which is located along Piscataway Creek in Prince George's County (Munford 1993).

Occupations dating to the Middle Archaic Period have also been identified at the Indian Creek V Site. Interestingly, by comparison, these occupations date to the early part of the Middle Archaic Period and are notably less well-represented at the site than those dating to the Early or Late Archaic time periods. It is believed, for the most part, use of the site was practically abandoned for most of the Middle Archaic Period. It has also been suggested that the disuse of the site during the Middle Atlantic Period may be a reflection of changing environmental conditions of the site's setting (Leedecker and Holt 1991).

4.3. Late Archaic/Early-Middle Woodland Period (3,000 B.C.E. - 1000 C.E.)

The Late Archaic/Early-Middle Woodland Period is defined by pronounced environmental alterations occurring throughout the Middle Atlantic region (Custer 1983, 1986, 1989). While the Late Archaic, Early Woodland, and Middle Woodland Periods all possess their own distinguishing characteristics, because of their overall similarities these three periods have often been regarded as a general time period. For example, in the state of Delaware this 4,000-year period of time has been called the Woodland I Period (Custer 1986, 1989, 1994; Watson and Custer 1990; Custer and Silber 1994). In southeastern Pennsylvania, the Early-Middle Woodland Period has been referred to as the Intensive Gathering-Formative Culture Period (Custer 1996).

Locally, this time frame is associated with severe climatic shifts that resulted in warm and dry conditions (Custer 1989). These changes enabled xeric and deciduous forests of oak and hickory to replace mesic forests, and the return of grassland areas. Although many of the existing interior wetland settings of the Middle Atlantic region disappeared, the slow but continued rise in sea level resulted in the emergence of new large brackish marshes, especially near the Chesapeake Bay. Stabilization of the climate, environment, and sea level were established by circa 1,500 B.C.E. and these conditions were probably relatively similar to present ones (Custer 1983, 1989). This alteration of the environment also caused notable changes in the adaptive strategies of prehistoric populations. Floodplains of major rivers and estuarine swamp/marsh settings supported a broad range of floral and faunal resources.

Smaller base camps are often located along lesser tributaries, near cobble beds, or in coastal areas near shell middens. Small procurement and processing sites are also scattered throughout these environments and along intermittent streams and in interior areas (Custer 1994). Along the southern coastline of the state, marine resources were integral in the subsistence of Late Archaic/Early-Middle Woodland populations. Sites dating to this time period are often found near tidal marshes, in sheltered coves, or in estuarine settings. Especially favored locations would be these types of settings that would have supported a diversity of resources such as ocean fish, crabs, and shellfish.

Although small short-term forays, for purposes such as hunting or obtaining raw lithic materials were made, in general, Late Archaic/Early-Middle Woodland Period groups seemed to have practiced a relatively sedentary settlement pattern. Group sizes seem to have ranged anywhere from small individual family units to conglomerations of several of these units dependent on seasonality or environmental setting (Custer 1989, 1994; Custer and Silber 1994).

Significant additions to prehistoric tool kits also appear during the Late Archaic/Early-Middle Woodland Period. Increased use of plant processing tools, such as grinding stones, mortars, and pestles, suggest a trend in efficient and intensive procurement of floral resources. Tools associated with woodworking, such as adzes and celts, become prevalent. More broad-bladed, knife-like processing implements also appear in chipped stone tool assemblages. Overall,

procurement of raw lithic material was based on primary and secondary sources; however, often non-local lithic materials are found within Late Archaic/Early-Middle Woodland Period assemblages. The presence of these imported materials suggests the emergence of trade and exchange networks among these groups (Custer 1989, 1994).

The addition of stone, followed by ceramic, vessels serving as cooking implements also reflect a growing efficiency in the use of certain food types. Some of the larger ceramic vessels may have served as storage vessels. Storage pits and house features have been identified at numerous sites dating to this time throughout the Middle Atlantic region (Custer 1989, 1994; Custer and Silber 1994).

This new, relatively sedentary settlement pattern also caused considerable changes in social organization of populations living in the Middle Atlantic region. A more sedentary lifestyle combined with horticultural plant harvesting would have yielded occasional surpluses. Consequently, these factors often allowed incipient ranked societies to form. For example, during the Middle Woodland Period, intensified procurement of fish resources is thought to have played a significant role in subsistence strategies within the Abbott Farm National Landmark near Trenton, New Jersey (Stewart 1994). Across the Middle Atlantic region, objects such as polished celts, gorgets, pipes, and tools of non-local materials appear to be manifestations of developing social organization.

The emergence of Adena culture, characterized by its unique material culture and mortuary practices, also occurred during the Early Woodland portion of this time frame. While Adena sites are more prevalent in the American Midlands, a few Adena sites have also been discovered in Maryland. Some of the better known Adena sites of Maryland are the Sandy Hill Site (18DO30) on the Choptank River near Cambridge (Ford 1976; Dent 1995; Custer 1989); the West River Site near Annapolis, and the Nassawango Adena Site (Wise 1973), which is along a small tributary of the Pocomoke River. In addition to large Adena-type bifaces made of non-local, high quality cryptocrystalline lithic material, some of these sites have yielded distinctly Adena-type artifacts that have included gorgets, pipes, or copper beads (Dent 1995).

Projectile points associated with the Late Archaic/Early-Middle Woodland Periods are quite diverse. For example, the Late Archaic Period marks the introduction of broadspear-type projectile points, which are believed to have functioned in knife-like capacities (Custer 1994). Common broadspear-types of the Mid-Atlantic region include Long/Savannah River, Perkiomen, Susquehanna, and Lehigh/Koens-Crispin types (Custer 1994; Dent 1995). Common non-broadspear points of the Late Archaic Period include Fishtail/Orient, Holmes, Halifax, Piscataway, and Bare Island/Lackawaxen types, and various side- and corner-notched Brewerton variants.

Numerous Early-Middle Woodland projectile point types have been noted for the Middle Atlantic region. Generally, most of these types consist of assorted stemmed and notched variants; however, several distinctive point types are also associated with the Early and Middle Woodland Period. Rossville, teardrop/ovoid, and Calvert projectile points are typical distinctive Early Woodland point types of the Chesapeake region. Selby Bay/Fox Creek and Jack's Reef

variants are regarded as common forms associated with the Middle Woodland Period (Dent 1995).

Early ceramic vessels were modeled in construction and closely resembled the lug-handled, flat-bottom steatite vessels of the early Late Archaic Period. Marcey Creek (circa 1200-800 B.C.E.) ceramic, a steatite-tempered ware, is one of the earliest wares of the Mid-Atlantic region and is often found in association with Fishtail/Orient points (Custer 1989, 1994, 1996). Later, these flat-bottomed vessels were replaced with conodial-shaped vessels of coiled construction. While early vessels of this construction were often tempered with steatite (e.g., Selden Island, Bare Island Coiled), eventually, assorted materials that include sand, crushed rock, grit, clay, shell, or various combinations thereof, were used as tempering agents in ceramic manufacturing. For example, sherds of Accokeek ceramic, a sand/crushed rock (quartz) tempered ware, is a recurrent ware type that has often been recovered in Early Woodland contexts throughout Maryland's Coastal Plain and into the Piedmont beyond the headwaters of the Patuxent River and into the Patapsco drainage. This ware has also been found throughout the Potomac watershed (Dent 1995).

4.4. Late Woodland Period (1000 C.E. - 1650 C.E.)

Overall, the Late Woodland Period, often referred to as the Woodland II Period, is characterized by an emergence of pronounced agricultural food production systems (Custer 1984, 1989). The growth of efficient plant food harvesting is a reflection of a continued pattern of sedentism of prehistoric populations.

In the Middle Atlantic region, significant variability in the subsistence systems, social organization, and community patterns existed among Late Woodland populations. These differences ranged from societies who lived in large villages organized by kinship groups to some of the less complex populations whose lifeways closely resembled those of their Middle Woodland predecessors (Custer 1983, 1989, 1996).

Aside from some modifications in projectile point and ceramic styles, deviations of Late Woodland artifact assemblages from Middle Woodland assemblages are minimal. Lithic assemblages suggest decreases in preference for exotic materials and increases in the use of quartz in tool manufacturing. By comparison, Late Woodland projectile point types are less varied and triangle points are regarded as the primary diagnostic point type of this period. Late Woodland ceramic assemblages exhibit notable increases in variation, especially the non-shell tempered wares (Wanser 1981). Common Late Woodland ceramic types that have been recovered in the general Baltimore-Washington area include Rappahannock and Townsend wares, both of which are shell-tempered. Other common Late Woodland ceramic types include Sullivan and Potomac Creek pottery, which are shell-tempered and quartz/sand tempered, respectively.

4.5. Initial European Contact and Settlement Period (1600 - 1645)

The Contact Period marks the initial arrival of European groups; predominately Dutch, Swedish, and English, to the Middle Atlantic region. Overall, data from the archeological record of this time period is limited; and often ethnographic accounts by these first explorers and settlers have been considered valuable supplementary sources of information.

Based on ethnolinguistic and ethnographic accounts, throughout the Late Woodland Period, two Native American cultural groups, the Nanticokes and the Piscataway were quite active in the region; however, by 1634, the stronghold of southern Pennsylvania Susquehannocks had extended throughout the Chesapeake Bay area and southward over the western shore. According to historical accounts, during his travels along the Potomac and Anacostia Rivers in 1609, John Smith visited several palisaded Piscataway villages.

5. Regional History

The history of the Middle Atlantic region begins with the arrival of the first substantial numbers of European groups to North America. In general, the historical past of Maryland is divided into five significant time periods that span from the arrival of European explorers to the area to modern times. These divisions are: Contact and Settlement (1570 - 1750), Rural Agrarian Intensification (1680 - 1815), Agricultural-Industrial Transition and Industrial Decline (1815 - 1870), Industrial-Urban Dominance (1870 -1930), and the Modern Period (1930 - present) (MHT 1991). The following overview of regional history has been abstracted from several works. Historic mapping is presented in Figures 5-1a, 5-1b and 5-1c.

5.1. Contact and Settlement Period (1570 - 1750)

Sir George Calvert, later Lord Baltimore, was the founder of Maryland. He initially formed the Colony of Avalon on the southeastern coast of Newfoundland, but difficult conditions and climate led to the abandonment of the settlement. He was then granted a charter on June 20th, 1632 and named the land Maryland, in honor of Queen Henrietta Maria. Before he could execute the charter, the he died and bequeathed the land to his son, Cecil Calvert, who also inherited his father's title. The territories of the charter extended from Watkin's Point, near the mouth of the Potomac River, north to the fortieth degree of north latitude, from the Atlantic Ocean and the Delaware Bay to the east, and to the Potomac River to the east. Portions of this grant included sections of Delaware, Pennsylvania, and Maryland (Boyd 1880).

In November 1633, Cecil Calvert, and his brother, Leonard, whom he made Governor of the new lands, sailed from Isle of Wight with more than 200 settlers to establish a colony in Maryland. The colonists landed in February of 1634 and formed a new settlement on present day Blackiston's Island. The colonist's were promised 100 acres of land for free, after 1683 colonists were required to buy their land (Chapelle et al. 1986).

A company was established that controlled fur trading with the Native Americans. At the time, nearly 40 tribes inhabited the Calvert grant and predominantly belonged to the Algonquin Nation. The Lower Western Shore tribes included the Choptico, Mattawoman, Patuxent, with the Piscataway forming the dominant tribe. The Eastern Shore was dominated by the Nanticokes, while the Susquehannocks lived at the head of the Bay and were part of the Iroquois nation (Chapelle et al. 1986).

Initially, the Native Americans and the colonists lived in harmony and established trade practices. The colonist purchased land from the Native Americans and created treaties aligning themselves with the Piscataway. Skirmishes among the Piscataway and the Susquhannocks caused tension between the Piscataway and the settlers, when the settlers refused aid to their ally. Slowly the relationship between the Native Americans and the colonists disintegrated and the Native Americans were forced out of their traditional territory and pushed west.

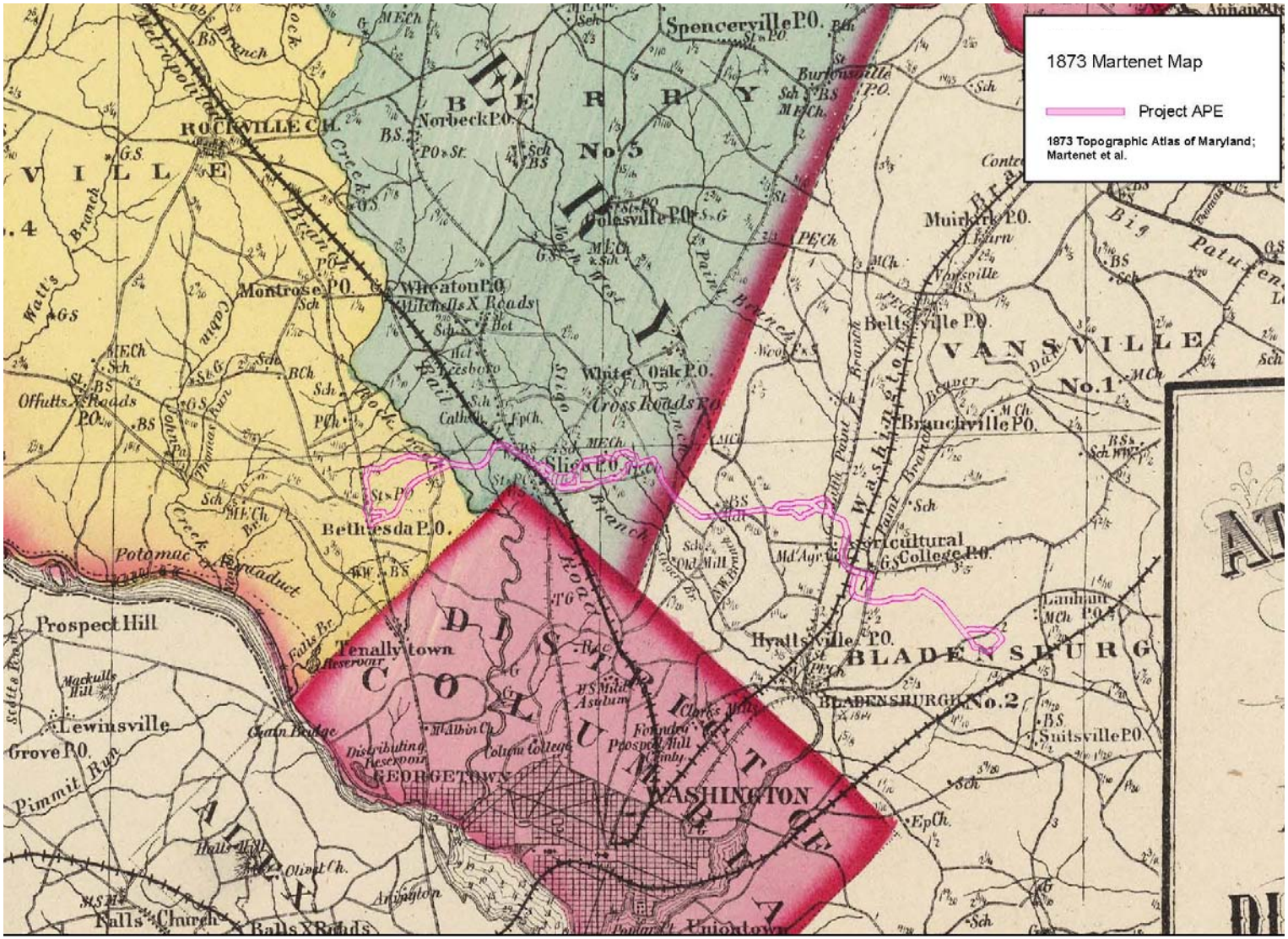


Figure 5-1a: 1873 Martenet Map

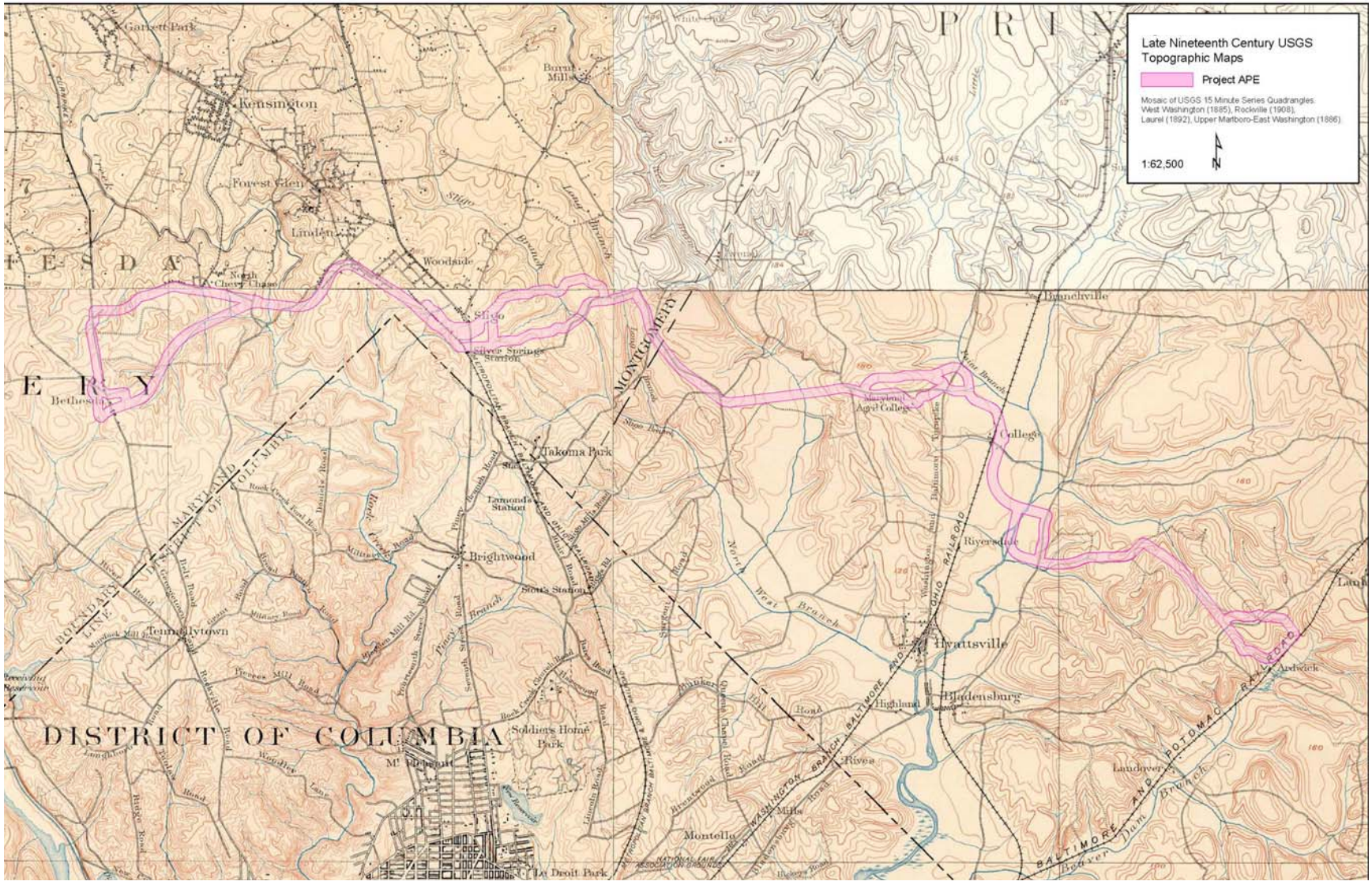


Figure 5-1b: Late Nineteenth Century USGS Topographic Maps

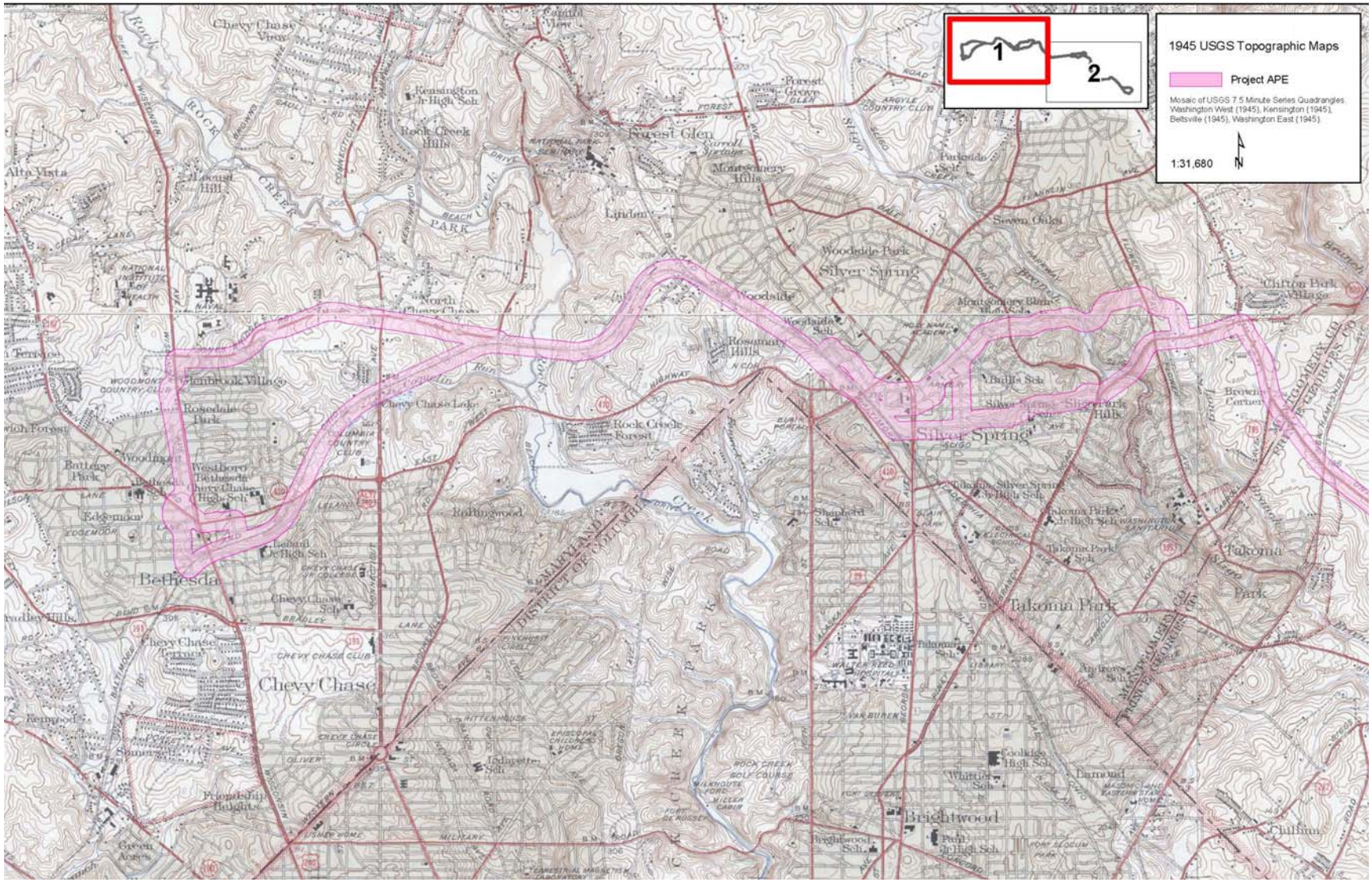


Figure 5-1c: 945 USGS Topographic Maps (1 of 2)

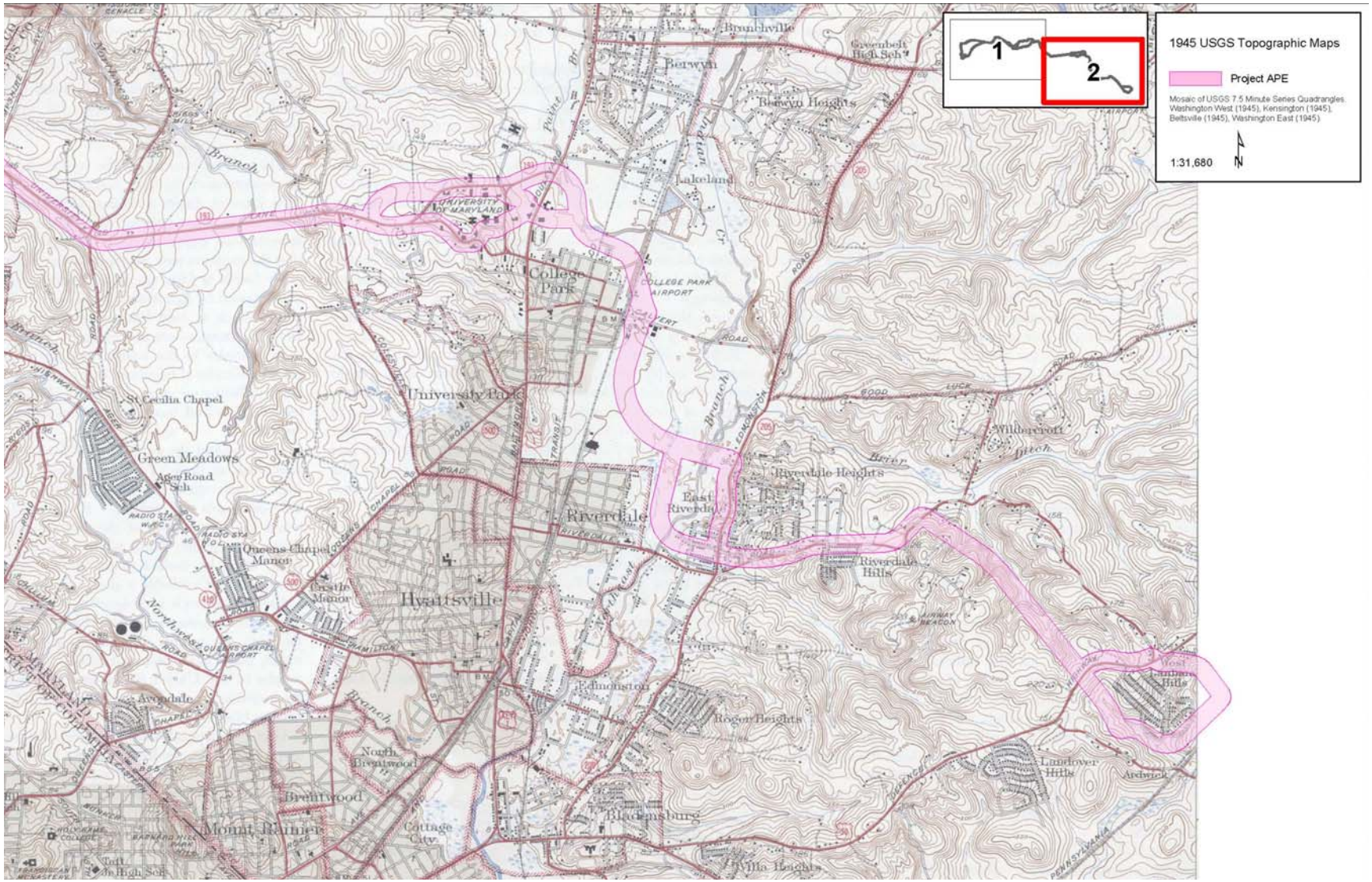


Figure 5-1c: 945 USGS Topographic Maps (2 of 2)

By the end of the 1600's few Native Americans were left on the eastern shore of Maryland, which left the land open to further colonization by Europeans (MacMaster and Hiebert 1976).

Grants were given for the land in what is now Montgomery County after 1715. Most grants went to influential men and tobacco merchants. These men encouraged the immigration of English and Scottish settlers and to a lesser extent the German and the Swiss. In 1745, a county was created in the northwestern portion of Maryland and was named Frederick County, in honor of the then Prince of Wales (MacMaster and Hiebert 1976).

Prince George's County was established in 1696 and inhabitants initially settled in the area at a much earlier date. The county was carved out of the older Calvert and Charles Counties, and included all of the area north of Charles County between the Potomac and Patuxent Rivers. In 1696, more than 200 land patents were granted for Calvert and Charles Counties, most of which were primarily concentrated along the Patuxent River, the Potomac River, and the Mattawoman Creek. These waterways served as major transportation routes to the interior. The substantial land tract of the newly formed Prince George's County corresponded to more than half of present-day Maryland's land area (Hienton 1972: 40).

5.2. Rural Agrarian Intensification Period (1680 - 1815)

Tobacco served as the main currency in Maryland and became the dominant cash crop. Virginia was considered to produce the best quality tobacco, and Maryland tobacco was deemed of a lesser quality. English merchants preferred to trade only with the Virginians as the Virginias had adopted a standard of quality. Eventually, following the lead of Virginia, Maryland farmers and merchants created the Maryland Tobacco Inspection Act.

Once Maryland was on equal footing with Virginia, the land was open to speculators. Large tracts of land were purchased and tenancy was established. Tenant farmers cleared large plots of land and grew tobacco as well as planting peaches and apples trees for the distillation of brandy and cider. The increased production of tobacco lowered prices. The lower prices and lowered profitability made it increasingly harder for tenant farmers to purchase land. While the Tobacco Stamp Act standardized quality of tobacco, it became increasingly oppressive. The tobacco buyers designed a policy that allowed tobacco to be purchased only at inspection warehouses and only between November 1 and July 1. Tobacco could only be sold at a preset price and quantity of 900 pounds per hogshead after it had been certified by inspectors. In 1770, the Tobacco Inspection Act lapsed and new fees were set by the Governor, which were met with much consternation and controversy. When tobacco cultivation became less profitable and severely depleted the soils, farmers increased their profits by diversifying the crops and using slaves as a workforce (Chapelle at al. 1986).

Corn was grown for livestock feed and sold to the West Indies. Wheat was grown and mills constructed to grind the grain. Timber was harvested for the shipbuilding industry. Ship construction utilized carpenters and blacksmiths, and local iron ore was processed to meet the needs of construction. All the growth resulted in the growth of towns and the demand for professionals like doctors, surveyors, merchants, and clergymen (Chapelle et al. 1986).

The French and Indian War (1754 – 1763) resulted from the conflicting desire of the French and English to expand their territories with respect to fur trading and other economic pursuits and to control the fishing grounds off the coast of Canada. Both countries claimed ownership and built forts and trading posts, and formed alliances with various Native American tribes. The English colonists resented Papal influence on the French and the French resented these anti-Catholic sentiments. As a response to the battles taking place in nearby Ohio, Maryland settlers formed a militia to protect settlements and holdings. The Maryland Legislature, fearing the colony would be attacked by the French, voted for money for the war effort and Benjamin Franklin organized the war supply effort. By 1863, the French had been defeated and France relinquished its northern territories in Canada to England with the exception of the island colony of St. Pierre and Miquelon, and New Orleans, which was conveyed to Spain.

After winning the French and Indian War, England gained much new territory. The English expected the colonists to fund the defense and cost of protecting the newly acquired lands. New taxes, including the Stamp Act, the Sugar Tax, the Currency Act, the Quartering Act, and the Townshend Act levied substantial taxes on the colonists. The colonists responded by boycotting English imported goods and rioting. The English escalated tensions by enacting the Intolerable Acts, a series of acts intended to further restrict the rights of the colonists (MacMaster and Hiebert 1976).

In 1774 the colonists formed the Continental Congress as a provisional government and Maryland formed the first Maryland Convention. Maryland, Virginia, and North Carolina jointly agreed to not to export tobacco to England. The Maryland Convention voted that every free male between the ages of 16 and 50 should be enrolled in a military company. The convention also chartered two new counties (Montgomery and Washington) to be formed from Frederick County. Rockville became the county seat of the newly formed Montgomery County. When the Revolutionary War began, the state required 2,902 Maryland men; recruits predominantly came from landless farmers and the labor class. Many of Maryland's men left home and traveled to New York to join the fighting, while others stayed in Maryland to concentrate on growing food and providing support for the military. Farms started growing wheat instead of tobacco to help the war effort (MacMaster and Hiebert 1976).

No battles were fought on Maryland soil, though the threat of invasion was real. The British did enter the Chesapeake and used it as a waterway to transport troops north to other locations. The British also landed occasionally in raids to loot farms for food and supplies. Finally the Revolutionary War was over and the British were defeated. The capital of the United States was placed along the Potomac River, formed from a portion of Montgomery County. The placement of the capitol in this location spurred growth and development throughout the region (Chapelle et al. 1986).

The War of 1812 began because of the need of the new United States for commerce and trade with France. England and France were then in a war and England tried to blockade any goods from reaching France. English forces began raiding American ships, pressing American soldiers into service in the war against France. In 1807 the British attacked an American ship, the

Chesapeake, killing three crew members and pressed several into service. As a result, an embargo was set in place and all trade stopped (Chapelle et al. 1986).

President Madison declared war in June of 1812. The United States forces attempted to invade neighboring Canada in a failed attempt to liberate the colony from England. With the War of 1812, Maryland was this time involved. The British forces attempted to take Fort McHenry in Baltimore but were not successful. British forces also succeeded in placing a blockade on the Chesapeake Bay and attacking the nation's capital in Washington, D.C. The War ended in 1814, with the repelling of the British from advancing south from Canada (Chapelle et al. 1986).

5.3. Agricultural-Industrial Transition Period (1815 - 1870)

Agriculture continued to develop within Maryland as the population continued to grow. Montgomery and Prince George's Counties remained agricultural despite the development of industry in surrounding counties. In addition to tobacco and wheat, corn, livestock, fruits, and vegetables were grown and dairies were established. Prosperous farms supplied the growing cities of Baltimore and Washington, D.C. Roads and turnpikes were developed to transport crops to the cities; conversely manufactured goods were transported back to the smaller villages. In 1780, the Susquehanna Canal company was formed and together with the Potomac Canal Company constructed the Chesapeake and Ohio Canal and was completed in 1850, passing through Montgomery County on its path to Cumberland. Construction of Maryland's first railroad commenced in 1828. It was completed in 1832, linking Baltimore with the Point of Rocks on the Potomac River (MacMaster and Hiebert 1976).

The use of slaves gradually declined as the profitability of tobacco production continued to decline. The number of slaves dwindled and the number of free African Americans rose. In 1860, slaves were 30 percent of the population of Montgomery County. Seven hundred and seventy individuals owned approximately 5400 slaves, with 80 percent of them owning on average of 10 or less slaves. Several anti-slavery groups formed abolitionist movements, but the practice was too embedded within the culture for change to happen (MacMaster and Hiebert 1976). The adjacent state of Pennsylvania (a free state) to Maryland was a destination for runaway slaves heading north to freedom.

In 1861, the American Civil War began with the firing on Fort Sumter, South Carolina. Although the State of Maryland sided with Union, residents of the State were far from unanimous in their support of Union. Thousands volunteered to fight for the union and joined forces with the north; while many others were outraged at the invasion of the southern states. In April of 1861, a riot occurred in Baltimore when troops from Massachusetts and Pennsylvania changed railroads on their way to Washington, D.C. Angry mobs surrounded the soldiers and 16 people were killed in the melee. Eventually, the state of Maryland decided to remain part of the union though small groups of confederate sympathizers existed. By November 1863, approximately 18,000 Maryland men fought for the south, while 53,000 sided with the union (Chapelle et al. 1986).

During the Civil War, many skirmishes and raids occurred throughout Maryland. Several large battles were fought and included battles in Harper's Ferry in 1861 and 1862, the Battle of South Mountain in 1862 and the Battle of Antietam in September 1862. The last raid in Maryland occurred in 1864 and by April 1865 the war was over. More than 90,000 slaves were emancipated. Though legally free, African Americans were still forced into segregation for many years (Chapelle et al. 1986).

5.4. Industrial Urban Dominance Period (1870 - 1930)

After 1870, the industries in Maryland were growing. The railroads and canals transported coal, iron, and steel to the metropolitan areas where newly freed African Americans and a growing immigrant population could provide manual labor. Montgomery and Prince George's Counties began to move from an agricultural economy when land speculators bought up large parcels of land near Washington, D.C. Additional railroad lines were established to the north and large dairies were founded to deliver fresh milk to the city. Dairies were profitable as they eliminated the need for expensive farm machinery and fertilizer for the fields. The large tobacco plantations were gone and replaced with smaller farms that housed dairies with the addition of other cash crops including beef cattle, poultry and egg farms, and farms providing fresh vegetables. Wheat was grown primarily near the canal line and ground in local grist mills for sale in Washington, D.C. (MacMaster and Hiebert 1976).

The development of cities resulted in the installation of water and sewage lines, the creation of public schools, and the construction of hospitals. The development of technology saw the installation of telegraph and telephone lines, electric plants, and factories on the outskirts of the city. Increased population coincided with an increase of communicable diseases. As a result, wealthier families bought summer homes outside of Washington, D.C. for relief of the summer heat and to escape diphtheria, typhoid fever, and other such outbreaks. Many smaller planned communities were developed to accommodate these families, often placed along or near railroad stations (MacMaster and Hiebert 1976). Consequently, these smaller enclaves required services which in turn created small towns in the suburbs of Washington, D.C.

In 1880, the town of Norbeck listed a population of 40 individuals including a postmaster, a blacksmith, a carriage master, two carpenters, three merchants, and fourteen farmers (listed as Norbeck residents). The land was valued at $25 to $40 an acre with an average yield of 25 to 30 bushels of wheat, 20 to 25 bushels of corn, and one and half tons of hay (Boyd 1880).

The housing and land speculating boom crashed in 1929 and coincided with the stock market crash and the beginning of the great depression. Though the stock market crash did not directly affect Montgomery County, Maryland, it was felt indirectly as the agricultural economy slowed and industry slowed production and laid off workers. Workers in the cities fared the worst, with women, African Americans, and immigrants being the first to lose their jobs. Unemployment reached as high as 40 percent in some regions of Maryland (Chapelle et al. 1986).

5.5. Modern Period (1930 - Present)

In 1933, President Roosevelt's New Deal attempted to solve the problems of the Great Depression. The national government created programs to provide relief to families, and promoted industrial and agricultural prosperity, and created opportunities for employment. As the government created new programs the workforce in Washington, D.C. increased, necessitating growth into the suburbs to house the additional personnel and their families (Chapelle et al. 1986).

With the advent of World War II, local factories began producing aircraft and weapons, and farms intensified their production to meet the needs overseas. Local shipbuilders employed additional personnel and steel factories worked to full capacity. Personnel were desperately needed to meet production demands and men leaving to fight overseas left vacancies filled by African Americans and women. The need for workers created an influx into the metropolitan areas of Baltimore and Washington, D.C. resulting in a shortage of housing. But the end of the war, Maryland had rebounded back from the preceding depression and looked to an era of prosperity (Chapelle et al. 1986).

After the war, the baby boom and the increase of population in Maryland set off a buying binge for housing and goods. Maryland, and particularly Montgomery and Prince George's Counties, turned from an agrarian and rural economy to an urban populace. As the cities grew older and larger with an influx of immigrants, it created an unsafe and overcrowded housing environment. As a result, those who could afford to migrated out to the suburbs. While few desired a return to the countryside, most wanted the goods and services available in the city. The shift in population and wealth created smaller planned communities and towns in the suburbs that sprang up along the highway and railroad corridors allowing personnel to still commute into the cities (MacMaster and Hiebert 1976).

5.6. Local History

For the purpose of the current local history discussion the Purple Line corridor has been divided into a series of six geographic areas.

5.6.1. Bethesda to 16th Street

The Bethesda to 16th Street area includes the communities of Bethesda, Chevy Chase, Lyttonsville, and Rosemary Hills. Bethesda originated as a small agricultural community known as Darcy's Store along the old Georgetown and Frederick Toll Road near Old Georgetown Road after the Civil War and didn't become known as Bethesda until 1871. During the second and third decades of the twentieth century the Baltimore and Ohio Georgetown Branch came to the area. Soon much of the farmland was subdivided and developed; the widespread use of the automobile in the early twentieth century precipitated a real estate boom. During the years of the Great Depression, Bethesda benefited from Works Progress Administration and other building projects. In the late 1930s and early 1940s, the construction of the National Institutes of Health complex and the Bethesda Naval Hospital further improved Bethesda; and the end of World War

II brought a second housing boom. The opening of the Red Line Metrorail station in Bethesda in the 1980s resulted in more growth to the area (Montgomery Planning Board Website).

Chevy Chase is the collective name for a town, a census designated place, and five villages all clustered along Connecticut Avenue (Route 185) in Maryland directly northwest of Washington, D.C. (Chevy Chase Village Website no date given). The Chevy Chase Land Company was formed by land developers in the 1890s for the development of a streetcar suburb of Washington, D.C. including the construction of an electric railway line. Although more land taxing districts were added throughout the first quarter of the twentieth century, the collective Chevy Chase entities didn't really become populous until after World War I. The town of Chevy Chase, formerly known as Chevy Chase Village Section Four, was not incorporated as a municipality until 1918 (Chevy Chase Village Website; Town of Chevy Chase Website).

Lyttonsville and Rosemary Hills are small communities located near the unincorporated census designated place of Silver Spring, which is discussed in the next section. Lyttonsville was formerly known as Linden and was one of several communities in Montgomery County that were settled by freed slaves in the nineteenth century (New American Media Website). Rosemary Hills was known for its racial diversity and for its school integration policies in the 1970s (Montgomery Public Schools Website).

5.6.2. 16th Street to Piney Branch Road

The 16th Street to Piney Branch Road area includes the communities of Woodside, Silver Spring, and East Silver Spring. Woodside Park was created from Alton Farm, the late nineteenth century country estate of Washington Star owner Crosby Noyes. In 1922 Noyes' heirs sold the land to the Woodside Development Company, which subdivided it into one-acre residential lots for the upper-middle class with a park and water features. Numerous traditionally-styled houses were constructed after World War II; many more were built up to the early 1950s and some were constructed on the relatively few lots left in the 1980s. Woodside Park is considered to be the prototypical suburban community of the 1920s and 1930s in Montgomery County by the Maryland National Capital Park and Planning Commission (Woodside Park History Page Website).

Silver Spring is an unincorporated census designated place and the third most populous entity in Maryland. It began in 1840 with the construction of a mansion outside Washington, D.C. by Francis Preston Blair, one of the founders of the modern Republican Party. Travel to Silver Spring became convenient in 1873 when the Baltimore and Ohio Metropolitan Branch came through on its journey from Point of Rocks, Maryland to Washington, D.C. Although there was some early suburban development by 1887, downtown Silver Spring didn't begin to thrive until the Lee Development Company, formed by descendents of Francis Preston Blair, came in the early twentieth century. The development of Woodside Park in the 1920s was a huge suburban stimulant to Silver Spring. The construction of schools, shopping centers, and entertainment venues in the 1920s and 1930s, and the arrival of several large retail stores in the 1950s added to the areas importance. Downtown Silver Spring began to decline in the 1960s and even the stimulus of Metro rail service in the late 1970s could not reverse this trend (Sween and Offutt 1999).

East Silver Spring is a neighborhood in Silver Spring that is located south of I-495, west of the county line, north of the D.C. line, and east of Colesville Road. The area is almost completely built out with little vacant land and has a diverse population with a large immigrant component. In the late nineteenth century it was an agrarian community with small crossroads centers, but after the coming of the Metropolitan Branch of the Baltimore and Ohio Railway in the 1870s and into the 1920s, it became an area of large-scale suburbs platted around the Baltimore and Ohio stations. Today there are few material remnants of the nineteenth century, but many early twentieth century resources remain (East Silver Spring Master Plan Website).

5.6.3. Piney Branch Road to Adelphi Road

The Piney Branch Road to Adelphi Road area includes the communities of Takoma Park, Langley Park, and Adelphi. Takoma Park was founded by New York venture capitalist Benjamin Franklin Gilbert in 1883 and is considered the first planned commuter suburb in Montgomery County. Gilbert chose the land because of its proximity to rail facilities, healthful elevation, and the clean Sligo Creek water supply. It reached early maturity twenty years before other Maryland suburbs near the D.C. line and was incorporated in 1890. By the turn of the century it had numerous houses on small residential lots, electrical service, hotels, businesses and three trolley lines. Takoma Park's healthful qualities convinced the Seventh Day Adventist Church in 1904 to locate its world headquarters there, where it remained until 1989. Over the years, many of the old houses were altered or lost: in the 1940s many large houses were converted to apartments and some were lost to fire in the 1950s (Historic Takoma, Inc. Website; City of Takoma Park Website).

Langley Park was created from farmland on a large rural estate in the 1940s to provide both single- and multi-family housing for World War II veterans and their families. It was considered Prince George's first planned community. Although many of the early occupants were white and Jewish, desegregation in the 1970s produced white flight and an influx of African Americans. In the 1980s and 1990s immigration from Central America, the Caribbean, Asia, and Africa made the population of Langley Park even more diverse, with a Hispanic population today of roughly 64 percent (Maryland-National Capital Park and Planning Commission Website; Langley Park Website).

The land that became the unincorporated community of Adelphi was agricultural in the eighteenth century as evidenced by the presence of an historic mill and farmhouse on Riggs Road today (Maryland Historic Trust Website). This mill is the only surviving historic mill in Prince George's County. The mill built by the Scholfield brothers in 1796 is the oldest and largest mill in the Washington area (Department of Parks and Recreation Website).

5.6.4. Adelphi Road to College Park/University of Maryland

The Adelphi Road to College Park/University of Maryland area includes the communities of College Park and Lakeland. College Park was first settled in 1745. In 1856, Maryland Agricultural College, which became the University of Maryland, was built on land that had formerly belonged to the Calvert family living in nearby Riversdale. The Maryland Agricultural Experiment Station was established in College Park in 1887. The development of College Park

was influenced by its location centered on several chronologically sequential modes of transportation: the Baltimore and Ohio Railway between Washington, D.C. and Baltimore in 1837; trolley lines around 1900; the nation's first highway, Route 1 in 1926; and the Metrorail Green Line in 1993. College Park Airport, which was constructed in 1909, is the world's oldest continuously operating airport (City of College Park Website no date given, Department of Parks and Recreation Website). College Park was incorporated in 1945 and its economy is based upon the presence of the University of Maryland, research facilities including the National Archives Building II that was established in 1894, and many electronics plants (High Beam Encyclopedia Website).

Lakeland was founded in the late nineteenth century and is a predominantly African-American neighborhood near the College Park campus of the University of Maryland (University of Maryland Office of Undergraduate Studies Website). Between 1917 and 1932, the Julius Rosenwald fund contributed to the building of new schools for African-American children in 15 southern states; two of these were in Lakeland (Community High School and Lakeland Colored School) and their buildings are extant (Prince George's County Historical and Cultural Trust 2005). Among the foundations of community life there were the Lakeland Giants, a mid-twentieth century African-American sandlot baseball team (Prince George's Historical Society 1996).

5.6.5. College Park/University of Maryland to Riverdale Road

The College Park/University of Maryland to Riverdale Road area includes the communities of Riverdale Park and East Pines. In 1800, Belgian émigré Henri Joseph Stier bought land bounded by, in terms of modern road names, Old Calvert Road on the north, Kenilworth Avenue on the east, Bladensburg Road on the south, and Baltimore Avenue on the west. A few years after that, Stier deeded that property and more to his daughter Rosalie and her husband George Calvert, a delegate to the Maryland Assembly and grandson of the fifth Lord Baltimore. The Calverts built a mansion, established a vigorous social life, and called the estate Riversdale [*sic*]. After their deaths, their son Charles Benedict Calvert purchased the property from his siblings to live on, but sold off the adjoining Rossborough farm to the Maryland Agricultural College (later the University of Maryland). Riversdale passed out of Calvert hands in 1887 when a firm of New York real estate developers purchased the by then 475-acre estate, including the mansion (which still stands and houses the Riverdale Historical Society), from Charles Benedict Calvert's son, Charles Baltimore Calvert. The development became Riverdale Park Although the Baltimore and Ohio Railway had run through the areas since 1835 and scattered housing had appeared there by the end of the nineteenth century, the coming of streetcars to Riverdale Park in the form of the City & Suburban Railway Company in 1899 and the Washington, Spa Spring & Gretta Line a little later, precipitated the construction of a enough middle-class housing for Riverdale Park to be considered a community (Town of Riverdale Park Website).

By the 1920s, additional house and road construction had filled in vacant areas, the population had grown and become more diverse, and Riverdale Park had incorporated as a municipal government. Riverdale Park remained an area of affordable housing, even though it included the Lord Baltimore Country Club. The period 1920 through 1945 saw the construction of a new

municipal building, a school, a hospital, a bank, a World War I memorial, and the Engineering and Research Corporation (ERCO), The Calvert Homes Project, originally temporary housing for war workers, housed World War II veterans who were employed at the ERCO plant. Unbuilt land was developed to meet a booming post World War II housing market. Flooding in the early 1950s resulted in the straightening of the meandering path of the Northeast Branch of the Anacostia River by Army Corps of Engineers in 1954. Between 1959 and 1962 land between the Northeast Branch of the Anacostia and Kenilworth Avenue south of Riverdale Road was zoned to allow the construction of complexes of multi-family dwellings (Town of Riverdale Park Website).

East Pines is an unincorporated subdivision with a Riverdale postal address. It is located just west of the Baltimore-Washington Parkway (Route 295) and south of Riverdale Road (Route 410). Examination of current aerial mapping suggests that most of the buildings in East Pines are single-family dwellings. Information gleaned from the internet (i.e., the birth date and birthplace of a veteran listed on the Vietnam Wall is 1946 and East Pines, Maryland) suggests that East Pines existed before the mid-twentieth century (Vietnam Memorial Wall Website). None of the addresses in East Pines is given on properties listed in the Maryland Historic Trust Inventory (Maryland Historic Trust Website).

5.6.6. Riverdale Road to New Carrollton

The Riverdale Road to New Carrollton area includes the communities of Beacon Heights, Lanham Woods, West Lanham Estates, West Lanham Hills, and New Carrollton. Beacon Heights dates from the mid- through late-twentieth century. Beacon Heights is a subdivision with a Riverdale Park postal address; Riverdale Park is discussed in the previous section.

Lanham Woods and West Lanham Estates are located in the unincorporated community of Lanham. In 1873 the widow of Trueman Lanham deeded land near today's MD 410 to the Baltimore and Potomac Railroad for a station. The name of this census designated place, Lanham, evolved from Lanham's Station (The Lanhams of Maryland and the District of Columbia Website no date given). Examination of inventory forms for properties in Lanham on the Maryland Historic Trust website indicates that Lanham has been steadily populated with housing subdivisions from the late nineteenth through the twentieth century (Maryland Historic Trust Website).

West Lanham Hills is located in the city of Hyattsville. Hyattsville was founded in 1860 by Christopher Clark Hyatt on a site between the Baltimore and Ohio Railway and the Washington-Baltimore Turnpike. The location was ideal for settlement because of its good access and was soon subdivided into lots for houses. Hyattsville was incorporated in 1886 with a charter that did not allow the sale of alcohol within its boundaries. A town charter providing street improvements and regulating disorderly behavior was presented in 1884. In 1886 Hyattsville became the first municipality in America to adopt a single tax, rather than personal taxes. An early commercial section along US 1 on the east side of the town included grocery and dry goods stores, a post office, smiths, wood and coal dealers, fire halls, and a land office by the late nineteenth century. In 1882 there were 172 houses in Hyattsville; numerous subdivided

additions were added later in the 1880s. The early twentieth century witnessed another building boom (City of Hyattsville Maryland Website).

When Ninian Beall, a former indentured servant was freed in 1677, he was given a parcel in what was to become New Carrollton. Over time, Beall increased his holdings such that at his death in 1717, he owned 13,000 acres upon which his extended family had constructed several houses. In the 1920s, Edward Mahoney purchased 300 acres on Beall's property and established horse stables and a training track. The track was converted into a midget and stock car racing venue in 1939 and remained so until 1954. Developer Albert Turner purchased the land from Mahoney's estate in 1957. His intention was to create a completely planned suburban city; it was incorporated as the City of Carrollton with a charter and council government in 1953 (City of New Carrollton Website).

6. Archeological Research Methods

The following discussion presents the research methods employed for the Phase Ia Archeological Assessment Survey.

6.1. Goals

At the time of the Phase Ia Archeological Assessment Survey, the final project alignment continued to remain under consideration. Given their cumulative linear extent, it was deemed prudent to focus study efforts on conducting a comprehensive archeological resources inventory and assessment study that could assist in project planning efforts. The primary project goals of the survey were:

- to develop a comprehensive overview of the archeological context and sensitivity of the Purple Line corridor that can be applied toward project planning activities.
- to construct an archeological foundation for any additional archeological studies that may be warranted upon selection of the Locally Preferred Alternative.

The survey was designed to achieve several archeological research objectives relevant to this stage of the project. These objectives were:

- to generate an inventory of previously documented or known archeological sites in and in the vicinity of the various alignment corridors that are currently under consideration.
- to provide a comprehensive overview of existing information of these sites. These efforts included basic identification of datasets (e.g., temporal context, property type, functional context) relevant to the known cultural resources.
- to provide a comprehensive preliminary assessment of the overall regional archeological sensitivity and to identify areas of archeological sensitivity within the various alignment corridors.
- to identify appropriate archeological studies (e.g., Phase Ib field verification and/or Phase II evaluation-level studies) that may be warranted for the project upon selection of a Locally Preferred Alternative.

6.2. Theoretical Premise and Motivation of the Phase Ia Archeological Assessment Survey

From a research perspective, the Purple Line provides an opportunity to examine the historic growth and development of Montgomery and Prince George's Counties. In accordance with the project goals and research objectives, the Phase Ia Archeological Assessment Survey strove to examine the manifestations of social and cultural change upon the landscape and apply them toward assessing the archeological sensitivity of the corridor.

It was anticipated that a thorough review of documentary materials would easily allow researchers to conduct exercises in landscape reconstruction, historic sequencing, and spatial modeling. These exercises also involved the integration of data from the concurrent historic architectural studies, as these resources represent extant vestiges of Montgomery and Prince George's Counties historic past. The results of the survey exercises were then used to help understand the archeological context of the APE from a regional perspective. In turn, the efforts provided a strong foundation for developing predictive models that could assist in delineating archeological sensitivity areas within the APE.

6.3. Survey Methods

Several measures were undertaken to achieve the survey goals and archeological research objectives of the Phase Ia Archeological Assessment Survey. The Phase Ia Archeological Assessment Survey included documentary research, a field inspection of the APE, and generation of an inventory of previously documented archeological sites. Identified resources were plotted on project base mapping (**Figure 7**). Data collected by these efforts were then applied to develop predictive models and to assess the archeological sensitivity of the APE.

A review of available documentation was performed to identify any previously recorded cultural resources within the vicinity of the APE. In addition to in-house materials, references consulted included files housed at the MHT, and various historical and educational institutions. In addition to MHT's current GIS databases and site files, other materials that were subjected to review included relevant project documentation, historic and aerial photographs, historic and environmental mapping, soil and hydrographic information, cultural resource management surveys, and technical journals. Other resources that were reviewed included pertinent publications regarding the pre- and post-contact history, ethnohistory, ecology, and geography of the area. Research efforts also included interviews with knowledgeable individuals and a review of electronic media (e.g., internet resources).

The Phase Ia Archeological Assessment Survey involved several pedestrian and windshield inspections of the APE. No subsurface archeological testing was performed by the Phase Ia Archeological Assessment Survey.

7. Inventory of Previously Documented Archeological Sites

A significant part of the Phase Ia Archeological Assessment Survey involved the generation of an inventory of known/previously documented archeological sites within the proposed APE and its general vicinity. The most current hard and electronic cultural resource databases maintained by the MHT were regarded as primary sources of information. The inventory included an assessment of the current circumstances of each site. Target issues that were addressed include the temporal and cultural affiliation of each site, the extent of study that has been conducted at each site, and the existing condition of each site (e.g., threat of destruction, National Register of Historic Places (NRHP) eligibility).

7.1. Previous Archeological Studies within the APE

Documentary research revealed that several cultural resource studies (by others) have been performed within the APE. Past study efforts have ranged from preliminary reconnaissance surveys that involved examinations of both historic architectural and archeological resources to intensive archeological data recovery investigations of individual sites. According to the most recent MHT GIS database, 16 archeological studies have been conducted within the APE (**Table** 7-1; **Figures 7-1a, 7-1b and 7-1c**). Of these, seven surveys were conducted in Montgomery County and nine surveys were conducted in Prince George's County. A section of the proposed Purple Line between Bethesda and Silver Spring was previously surveyed in 1996 for the Georgetown Branch Transitway/Trail Study. A previous survey of the full project study area was conducted in December of 2005.

A Cultural Resource Reconnaissance Survey of the Purple Line corridor (then known as the Bi-County Transitway) was conducted in December 2005. The purpose of the survey was to identify archeological and architectural resources within the corridor. The document presented the results of archival and field reconnaissance investigations. This survey identified 21 areas of prehistoric and historic archeological potential within the corridor. These areas of archeological sensitivity are listed in **Table 7-2** and shown on **Figures 7-1a, 7-1b, 7-1c and 7-1d**. The MHT concurrence letter for the survey is in Attachment 1.

The Cultural Resource Reconnaissance Survey focused primarily on the corridor that seemed likely to have retained intact soils. Land that was obviously disturbed with residential, commercial, and industrial developments was excluded from the survey. Areas within 492 feet of a water source with ground slopes less than 15 percent, and areas with moderately to well-drained soils were considered to have prehistoric archeological potential. Historic maps were used to identify where structures older than 100 years were standing or once stood within the corridor. The yards of these structures were considered to have possible intact historic resources. Linear historic resources, such as railbeds and tow paths, were also observed.

Table 7-1: Previous Archeological Surveys in APE

Survey	Authors	Date Survey Performed
Reconnaissance of Proposed MD 410 Extended	Conrad, Geoffrey W.	1976
Survey of the Washington Metropolitan Area Transit Authority's Rockville, Glenmont, New Carrolton, and Addison Routes in Maryland	Gardner, William M.	1976
Recon Survey of Baltimore-Washington Parkway From the Washington, D.C. Line To the Baltimore City Line	Curry, Dennis C	1978
Reconnaissance Survey of Sligo Creek Relief Sewer	Evans, June	1978
An archeological Survey: College Park Airport	Basalik, Kenneth	1980
The M DOT Archeological Resources Survey, Volume 3: Piedmont	Wesler et al.	1981
Phase I Archeological Reconnaissance for the Woodmont Avenue Extension Project	Koski-Karell, Daniel and Luis Ortiz	1983
Phase I Cultural Resources Survey for the Calvert Road Relocation	Cheek et al.	1985
Phase I Cultural Resources Survey for the Calvert Road Relocation, Alternate 2 Modified	Cheek et al.	1987
Archeological Survey Baltimore and Ohio Railroad, Georgetown Subdivision	Crowell et al.	1987
Letter Report: Executive Summary, Cricket Field, Subtask No. 1, Preliminary Archeological Feasibility Analysis	Goodwin, R. Christopher	1991
Phase I/ Phase II Archeological and Architectural Investigations for the Proposed Site of the William H. Natcher Building	Goodwin et al.	1992
Phase I/II Cultural Resource Survey for the Anacostia River Basin Environmental Restoration Project	Baumgardt, Kenneth	1994
Phase I Archeological Survey of the Proposed Anacostia Tributaries Trail From Lakeland To Cherry Hill Road,	Bodor, Thomas W. and Donald K. Creveling	1994
Archeological and Historic Structure Identification Survey for the Georgetown Branch Transitway/Trail Study	Koski-Karell, Daniel	1996
Reconnaissance Survey of the Bi-County Transitway Study	C.E. Marble	2005

Table 7-2: Areas of Archeological Potential Identified in Cultural Resource Reconnaissance Survey

Segment	Area Designation	Description of Location
Bethesda-16th Street	Area 1	Southern boundary of the National Naval Medical Center along Jones Bridge Road
16th Street-Piney Branch Road	Area 2	Area along Pine Branch Road at Long Branch Park/stream
16th Street-Piney Branch Road	Area 3	Park at the Corner of Sligo Avenue and Pine Branch Road
16th Street-Piney Branch Road	Area 4	Area South of Goodacres Knolls, within Sligo Creek Park and along Sligo Creek
16th Street-Piney Branch Road	Area 5	Area along Piney Branch Road at Long Branch Park
Piney Branch Road-Adelphi Road	Area 6	Limited open spaces at the southern portions of Langley Park north of University Boulevard
Piney Branch Road-Adelphi Road	Area 7	Limited open spaces at the southern portions of Langley Park north of University Boulevard
Piney Branch Road-Adelphi Road	Area 8	Areas of Northwest Branch Park along University Boulevard
Adelphi Road-College Park University of Maryland	Area 9	Open space fronting buildings along the eastern entrance of the College Park University of Maryland
Adelphi Road-College Park University of Maryland	Area 10	Open space in the western yard fronting "Fraternity Row" College Park University of Maryland
Adelphi Road-College Park University of Maryland	Area 11	Open space west of the Baltimore and Ohio Railroad north of College Row
College Park University of Maryland-Riverdale Road	Area 12	Open space of Indian Creek Park/Calvert Road/Paint Branch Parkway
College Park University of Maryland-Riverdale Road	Area 13	Open space of Indian Creek Park/Riverdale Community Park along River Road
College Park University of Maryland-Riverdale Road	Area 14	Areas of undeveloped space within the residential neighborhood of Riverdale Heights, South of Riverdale Hills School
Riverdale Road-New Carrollton	Area 15	Open space in conjunction with Auburn Manor near stream
Riverdale Road-New Carrollton	Area 16	Limited undisturbed areas within Glenridge Park along Veterans Parkway
Riverdale Road-New Carrollton	Area 17	Limited undisturbed areas along Riverdale Road
Riverdale Road-New Carrollton	Area 18	Limited undisturbed areas within Glenridge Park along Veterans Parkway
Riverdale Road-New Carrollton	Area 19	Limited undisturbed areas within Glenridge Park along Veterans Parkway
Riverdale Road-New Carrollton	Area 20	Open spaces along north side of Veterans Parkway around the Intersection of Ellin Road
Riverdale Road-New Carrollton	Area 21	Wooded areas of buffering between Riverdale Road and the residences of Lanham Woods

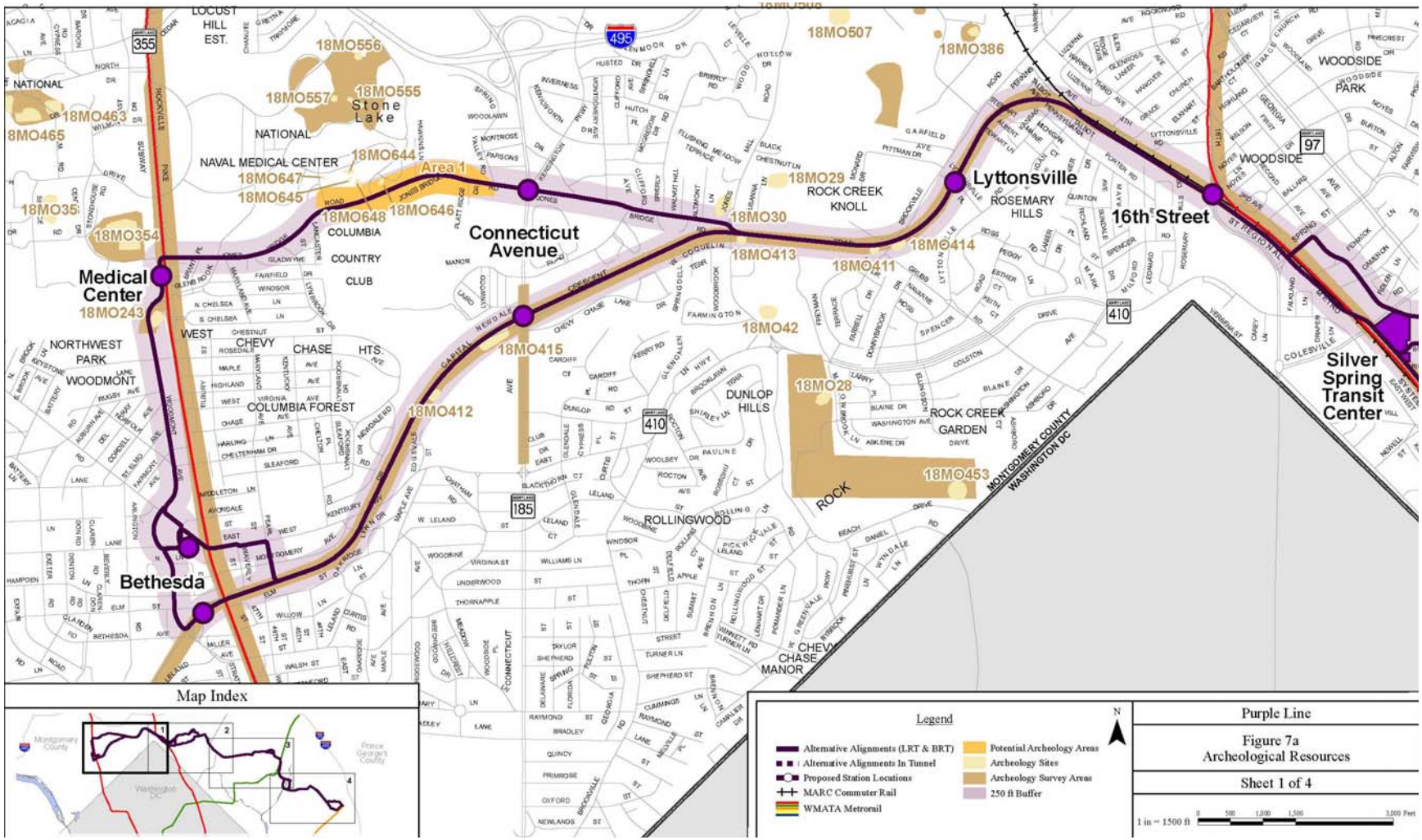


Figure 7-1a: Previously Documented Archeology Resources and Areas of Archeological Potential

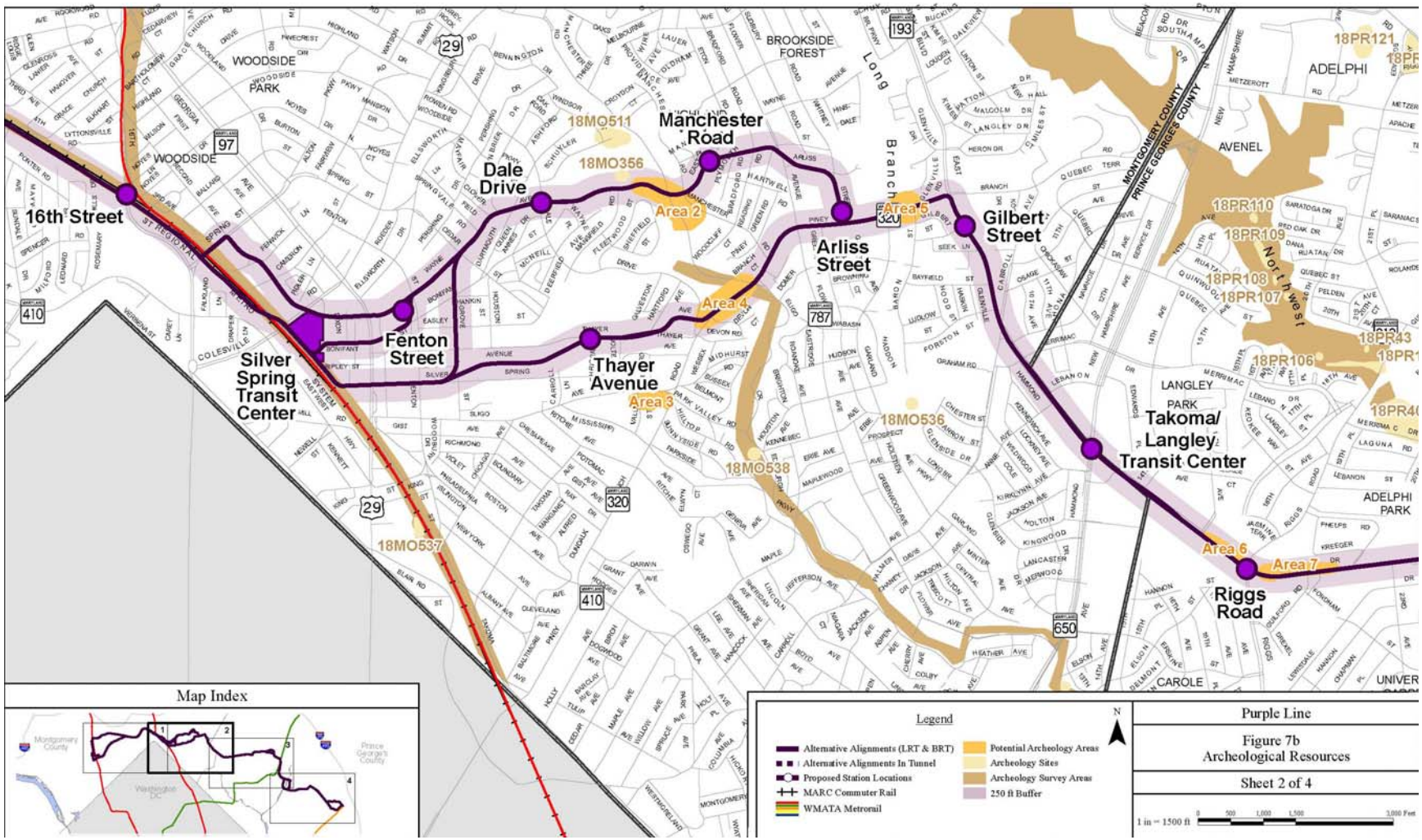


Figure 7-1b: Previously Documented Archeology Resources and Areas of Archeological Potential

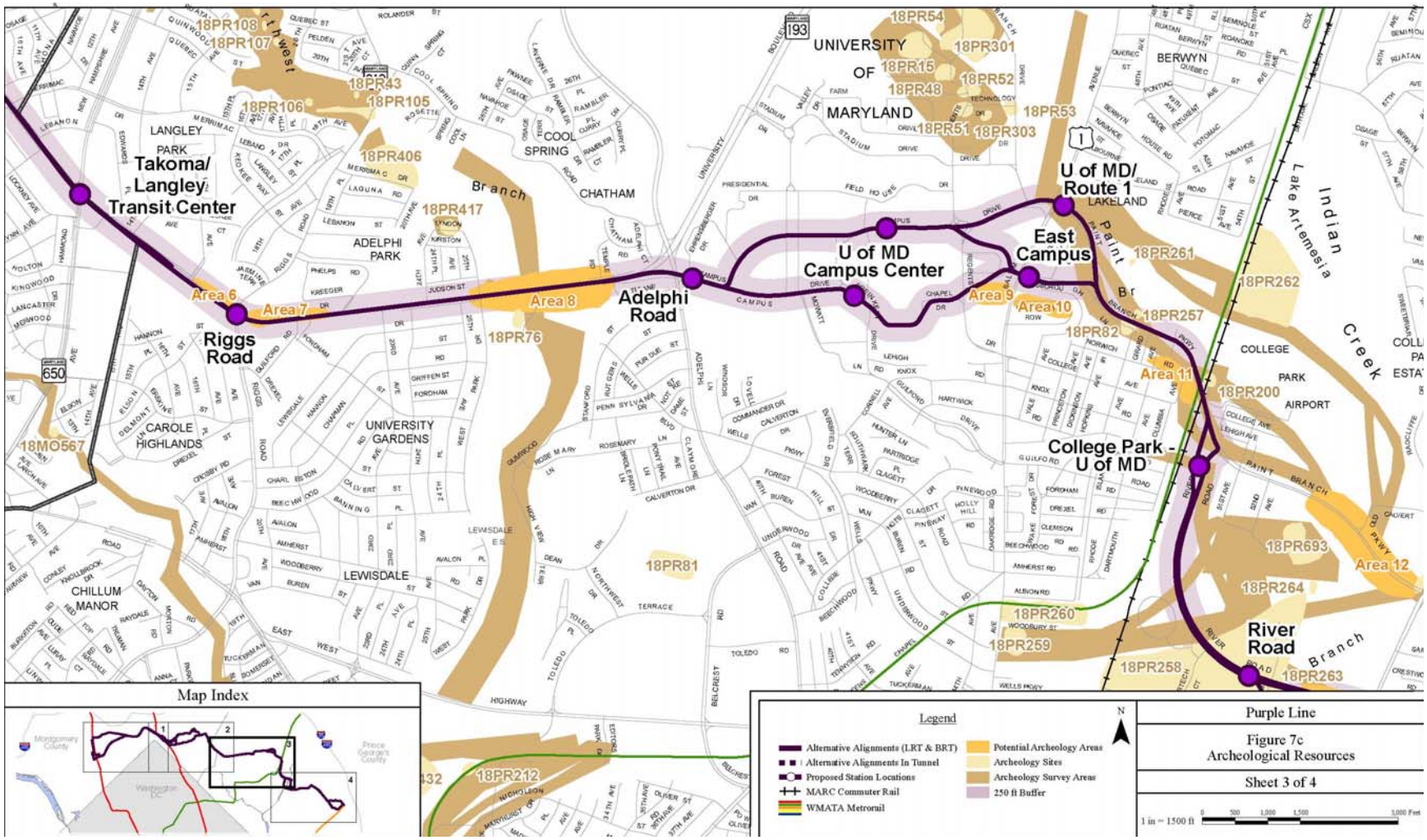


Figure 7-1c: Previously Documented Archeology Resources and Areas of Archeological Potential

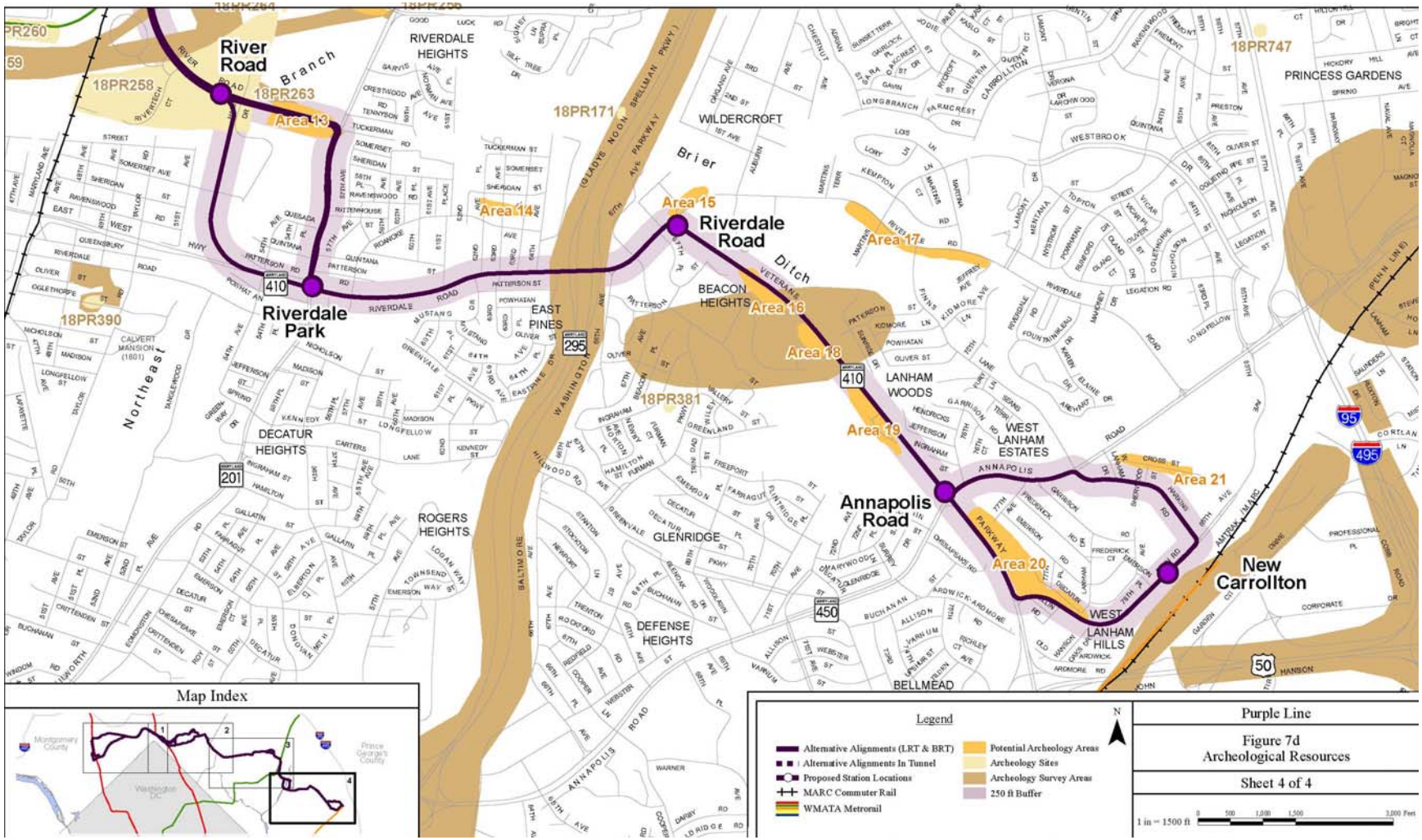


Figure 7-1d: Previously Documented Archeology Resources and Areas of Archeological Potential

7.2. Previously Documented Archeological Resources within the APE

Fifteen archeological sites were present within the APE. Information on these sites is included in Table 7-3; Attachment 2. Of these 15 sites, only two were deemed to be eligible for inclusion in the NRHP. Eligibility has not been determined for five of the archeological sites, and eight have been determined ineligible for NRHP inclusion.

Table 7-3: Archeological Sites within the Corridor

Site Name	Site Number	Resource	Eligibility
Taylor Site	18MO243	Late Archaic-Woodland Short-Term Resource Procurement Camps (Multiple Occupations)	Eligible (6/28/85)
Clean Drinking Manor	18MO30	Nineteenth Century Plantation	Not Determined
Sligo Cabin	18MO356	Prehistoric, ,Late Nineteenth Early Twentieth	Not Determined
Rock Creek Trestle East	18MO411	Prehistoric Lithic Scatter	Not Eligible (3/12/96)
Columbia Country Club	18MO412	Prehistoric Lithic Scatter	Not Eligible (3/12/96)
Rock Creek Trestle West	18MO413	Prehistoric Lithic Scatter	Not Eligible (3/12/96)
Old Brookville Road Bridge Ruins	18MO414	Late Nineteenth Early Twentieth Century Bridge Ruins	Not Eligible (3/12/96)
B&O Railroad Connecticut Avenue	18MO415	Late Nineteenth Early Twentieth Century Railroad Freight Station	Not Eligible (3/12/96)
NNMC 3	18MO646	Prehistoric Unknown	Not Eligible (12/5/06)
NNMC 5	18MO648	Prehistoric Unknown	Not Eligible (12/5/06)
College Park Airport	18PR200	Late Twentieth Century Airport	Listed (NR-436)
Trolley Bridge	18PR257	Late Nineteenth-Twentieth Century Trolley Bridge	Not Determined
ERCO	18PR258	Late Twentieth Century (World War II) Air Field	Not Determined
Fire	18PR263	Prehistoric Lithic Scatter	Not Determined
Rhode Island	18PR82	Prehistoric Unknown	Not Eligible (8/25/87)

7.2.1. Archeological Resources within APE – NRHP Status Not Determined

Clean Drinking Water Manor Site (18MO030)

Clean Drinking Water Manor was constructed in 1750 on Jones Mill Road in Montgomery County by Charles Jones (Moore 1929). The structure was a brick-filled frame building measuring one-and-a-half stories. Records indicate that a cluster of brick outbuildings were constructed at the same time as the main manor house (*American Monthly* 1896). These outbuildings included a kitchen, servant quarters, and a well. A large portion of the Clean Drinking Water Manor Site was destroyed during construction of a nursing home and nearby roadways. However, beyond these construction disturbances, intact portions of the site may still

exist and may contain structural remains as well as other features such as privies. When a final alternative is selected, a Phase Ia sensitivity study may need to be conducted on the Clean Drinking Water Manor Site to determine site boundaries and limits of disturbance.

The manor was used as a rest stop by George Washington on his journey home from Fort Duquesne in 1755. The manor was also used as a refuge from the British by Postmaster Monroe in 1814. Clean Drinking Manor was occupied by the Jones family until the early twentieth century when it slowly fell into disrepair and ruin.

Trolley Bridge Site (18PR257)

The Trolley Bridge Site was identified by John Milner and Associates during the Phase I Archeological Assessment Survey of the Calvert Road Relocation in 1989. The bridge carried a local trolley over the Paint Branch drainage. The bridge was originally built in 1895 and was later structurally altered in the early twentieth century. Trolley Bridge was a through-type girder bridge built by the Youngstown Bridge Company for the Columbia and Maryland Railway Company. Field observations during the survey revealed that the bridge decking was gone and that the metal structure was suffering from severe corrosion. No subsurface testing was performed around the bridge at the time of the Milner survey, so no determination of eligibility was made at that time. However, archeological testing around such a structure would produce only a limited amount of information and artifacts. The site is essentially a standing bridge structure, and it is unlikely that any related significant cultural features exist around the abutments.

ERCO Site (18PR258)

The ERCO Site was identified by John Milner and Associates during the Phase I Archeological Assessment Survey of the Calvert Road Relocation in 1985. The site contains remnants of a late twentieth century air field with standing structures and a runway associated with the World War II era. No subsurface excavations took place during the survey, and only a surface observation was completed. No determination of eligibility occurred during the Milner survey. The structures and runway were determined eligible for the NRHP in 2002. While the structures and runway may be significant mid-twentieth century historic resources, it is unlikely that archeological investigation would yield any significant historical information about the complex that could not be obtained from archival sources. The limited archeological potential of the site has also been diminished by substantial development in the area.

Henry Berliner purchased 50 acres of land in Riverdale, Maryland, near the College Park Airport, and built the large ERCO factory and airstrip in 1937 (Department of Parks and Recreation 2008). ERCO's most significant achievement included the development of the Ercoupe aircraft in 1939. This aircraft was considered to be spin, stall, and slip proof and included many period aeronautical innovations.

Fire Site (18PR263)

The Fire Site was identified by John Milner and Associates during the Phase I Archeological Assessment Survey of the Calvert Road Relocation in 1985. The site contains a prehistoric quartzite lithic scatter. A systematic testing grid was established on the site, and shovel test pits were excavated within the area. The site was likely disturbed by construction of a runway, but the extent of that disturbance is unknown to date. When a final alternative is selected, a Phase I investigation study may be needed on the Fire Site to determine site boundaries and limits of disturbance.

Sligo Cabin Site (18MO356)

The Sligo Cabin Site was identified during the construction of a recreational facility at Sligo Creek Park during a non-systematic survey. This survey was completed by the Maryland-National Capital Park and Planning Commission (MNCPPC) and the site was identified by James D. Sorensen via pedestrian reconnaissance in 1991. Non-diagnostic prehistoric artifacts and late nineteenth to early twentieth century artifacts were recovered during the walkover. Portions of this site were destroyed with grading and construction activities.

7.2.2. NRHP Eligible Archeological Resources within APE

Taylor Site (18MO243)

The Taylor Site is located in an area covered by grass and trees in the southeastern corner of the National Institute of Health campus on Wisconsin Avenue in Montgomery County. The site was recorded as part of a compliance survey associated with the extension of Woodmont Avenue (Koski-Karell 1983). Although portions of the site were found to have been disturbed, relatively intact portions of the site were identified. The site contained a wide variety of prehistoric and late historic artifacts. The historic artifacts were linked to the development of the golf course in the 1920s and were not considered significant.

The prehistoric artifacts recovered indicated a multi-component short-term resource procurement camp, with diagnostic tools and ceramics suggesting periodic occupation from the Late Archaic through Middle Woodland cultural periods. The proposed road extension was redesigned to avoid impacts, and the site is considered to retain potentially significant deposits. The Low Investment BRT alignment along Wisconsin and Woodmont Avenues are adjacent to this site. Should this alignment be selected, additional investigations will be undertaken to assess adjacent portions of the site so that impacts can be avoided or minimized.

College Park Airport Site (18PR200)

A portion of the historic College Park Airport (National Register 436) was subjected to systematic archeological investigation in 1980 as a compliance project related to planned airport redevelopment. The testing focused on the structural remains of four earlier hangars associated with the airport's early development. Although the project did yield artifacts associated with the airport's period of significance, there was no definitive determination as to whether these resources were contributory to the significance of this NHRP-listed historic property. The

College Park Airport is considered the world's oldest continually operating airport. Individuals such as Wilber Wright tested some of world's first airplanes at the facility in the early twentieth century (Department of Parks and Recreation 2008).

7.2.3. NRHP Ineligible Archeological Resources within APE

Rock Creek Trestle East Site (18MO411)

The Rock Creek East Site was identified during a Phase I archeological investigation for the Georgetown Branch Trolley/Trail Project in 1990. Testing recovered four pieces of quartz debitage indicating the presence of a low-density prehistoric lithic scatter site. No diagnostic artifacts were recovered during field excavations, and the site likely represents a short-term campsite. Given both the lack of subsurface integrity and low artifact density, the Rock Creek Trestle East Site was determined to be ineligible for inclusion in the NRHP.

Columbia Country Club Site (18MO412)

The Columbia Country Club Site was identified during a Phase I archeological investigation for the Georgetown Branch Trolley/Trail Project in 1990. Eighteen pieces of quartz debitage were recovered during testing. Given the lack of both subsurface integrity and diagnostic artifacts, the Columbia Country Club Site was determined to be ineligible for inclusion in the NRHP.

Rock Creek Trestle West Site (18MO413)

The Rock Creek Trestle West Site was identified during a Phase I archeological investigation for the Georgetown Branch Trolley/Trail Project in 1990. The site was identified as a low-density prehistoric scatter site and produced only two quartz debitage fragments during excavations. No diagnostic artifacts were recovered during testing. Given both the lack of subsurface integrity and low artifact density, the Rock Creek Trestle West Site was determined to be ineligible for inclusion in the NRHP.

Old Brookville Road Bridge Ruins Site (18MO414)

The Old Brookville Road Bridge Ruins Site was identified as part of a Phase I archeological investigation for the Georgetown Branch Trolley/Trail Project in 1990. The ruins consist of concrete abutments and footings of the former Brookville Road crossing of the Georgetown Branch of the Baltimore and Ohio Railroad. These ruins represent remains of a late nineteenth to early twentieth century vehicular bridge and are unlikely to contribute any further important information. Therefore, the Old Brookville Road Bridge Ruins Site was determined to be ineligible for inclusion in the NRHP.

Baltimore and Ohio Railroad Connecticut Avenue Facility Site (18MO415)

The Baltimore and Ohio Railroad Connecticut Avenue Facility Site was identified as part of a Phase I archeological investigation for the Georgetown Branch Trolley/Trail Project in 1990. The site represents what remains of the Connecticut Avenue freight facility that once served the Georgetown Branch. These structural remains included a wooden platform, main line, and

siding railroad tracks. Twentieth century artifacts were observed scattered across the site's surface. Based on the recent date of the artifacts recovered, as well as the nature of the historic remains, the Baltimore and Ohio Connecticut Avenue Facility Site was determined to be ineligible for inclusion in the NRHP.

National Naval Medical Center Site #3 Site (18MO646)

The National Naval Medical Center Site #3 was identified as part of the Phase I survey for the National Naval Medical Center in 2006. A systematic archeological survey was conducted with the excavation of close interval shovel test pits. While no diagnostic artifacts were found during testing, six pieces of debitage were recovered. Portions of the site have been disturbed by recent contouring and grading. Excavations recovered few prehistoric artifacts within the site's boundaries, and those that were recovered were found in a disturbed plowzone context. The National Naval Medical Center Site #3 was determined to be ineligible for inclusion in the NRHP.

National Naval Medical Center Site #5 Site (18MO648)

The National Naval Medical Center Site #5 was identified as part of the Phase I survey for the National Naval Medical Center in 2006. A systematic archeological survey was conducted with the excavation of close interval shovel test pits. While no diagnostic artifacts were found during testing, 10 pieces of debitage and one unifacial tool were recovered. Portions of the site have been disturbed by recent contouring and grading. The site lies on a hillslope, and some materials may have washed down the hill and been re-deposited. Excavations recovered few prehistoric artifacts within the site's boundaries, and those that were recovered were found in a disturbed plowzone context on a slope. The National Naval Medical Center Site #5 was determined to be ineligible for inclusion in the NRHP.

Rhode Island Avenue Site (18PR082)

The Rhode Island Avenue Site was identified by an amateur archaeologist during the 1970s when the site area was being cultivated. According to local collectors, the site produced a large quantity of prehistoric artifacts, including a diagnostic tool assemblage. A warehouse and associated parking lot were constructed on the site in 1972, likely destroying any subsurface archeological resources. The site was reevaluated in 1987 during a Phase Ia Archeological Assessment Survey for the Calvert Road Relocation Project. This report agreed with the previous assessment, stating that the site had been destroyed during commercial construction activities. It is also likely that the majority of the site was localized within the top plowzone and that artifact deposits would have been shallow in depth. Based on these assessments, the Rhode Island Avenue Site was determined to be ineligible for inclusion in the NRHP.

8. Assessment of Archeological Sensitivity

The following discussion provides a summary of the results of the Phase Ia Archeological Assessment Survey.

8.1. Regional Archeological Sensitivity

Results of the Phase Ia Archeological Assessment Survey clearly imply that from a regional perspective, the APE falls within a portion of Maryland that has considerable potential for containing archeological sites.

The geographic location of the APE and the environmental setting within which it falls are generally considered to be medium to high probability zones for a diversity of Native American archeological sites. The APE crosses Maryland's Piedmont and Coastal Plain physiographic zones, both of which have yielded numerous Native American sites. Moreover, it is important to recognize that while much of the Bethesda to New Carrollton region has been subjected to modern roadway construction and development, during prehistoric times, the environments of this portion of Montgomery and Prince George's Counties, were notably different.

Before the arrival of Western Europeans and the subsequent farming and urbanization of the region, the environs of Rock Creek, Sligo Creek, Northwest Branch, and the Northeast Branch watersheds would have contained a variety of ecosystems including various riverine, and spring-type settings. Because these environments supported a diversity of floral and faunal species, prehistoric hunter-gather groups would have considered this region a favorable settlement locale due the abundance of resources. The availability of cobble resources for use in stone tool manufacturing, around the Fall Line, would have also attracted human populations. Throughout the Middle Atlantic region, archeological research has shown that physiographic transitional zones were frequented by Native American groups due to wide ranges of natural resources (Custer 1989, 1996). Based on models of archeological research, Native American site type expectancies for the general region may range from small procurement and processing stations to base camp-type sites. Of the temporal contexts established for Maryland, the general vicinity of the APE would be most apt to contain sites dating to the Late Archaic through Late Woodland Periods.

The APE also falls within a moderate to high probability zone for historic archeological sites. This portion of both Montgomery and Prince George's Counties began their historical development within the areas of Bethesda and Silver Spring in the early to mid-nineteenth century. Other areas like College Park and New Carrollton began much later in the mid-twentieth century, although both towns have older structures associated with old transit routes like US 1 and the Baltimore and Ohio Rail Line. Any structural remains found in the Purple Line corridor would likely date from the mid- to late nineteenth century to the mid-twentieth century.

8.2. Archeological Sensitivity of the APE

Although the general region surrounding the APE is considered to have a high probability for containing archeological resources, ascertaining the overall archeological sensitivity of the APE itself presents an interesting challenge. For example, while prehistoric populations may have once occupied the general region, the extent of modern urbanization must be taken into consideration when assessing the likelihood of discovering prehistoric archeological remains in urban settings.

The results of the Phase Ia Archeological Assessment Survey clearly revealed that while the APE does have the potential to containing archeological resources, landscapes within the APE have been subjected to considerable alteration since the mid-nineteenth century. These alterations include suburban development and transportation construction. During documentary review and field inspections, it became obvious that remains of the region's pre-twentieth century historic and natural landscapes are limited.

Based on the preliminary design, it is anticipated that aside from a few exceptions, such as station and yard locations, most of the proposed work would be performed within the limits of existing roadways. During the field inspection, it became apparent that the presence of intact (i.e. undisturbed) landforms could be quite limited, as most of the APE has experienced considerable subsurface disturbance.

Given the severity and extent of past disturbance, most of the land within the APE is considered to have a low probability of containing any intact archeological resources. It is likely that the APE may have once contained various intact prehistoric and post contact archeological resources. However, it is also likely that the integrity of many such resources therein has since been compromised, if not destroyed, by past earthmoving activities.

Nonetheless, it is important to note that while the overall character of the APE can be classified as disturbed, the results of the Phase Ia Archeological Assessment Survey also indicate that the potential for intact archeological deposits within the APE cannot be completely dismissed.

One of the most interesting findings of the Phase Ia Archeological Assessment Survey was the number of archeological sites that have been found within the APE. Moreover, past site studies have also revealed that many of the sites possessed good subsurface integrity, even along roadside edges. At several sites, intact cultural features were found beneath thick overburdens of fill relatively close to the edge of pavement. Clearly, these sites demonstrate that while much of the APE has experienced subsurface disturbance, the APE still has the potential to containing intact archeological sites.

A preliminary survey conducted on the Purple Line corridor identified 21 areas of prehistoric and historic archeological potential. These areas were identified with potential due to the possible presence of intact soils, proximity to drainages, and the areas immediacy to an historic structure.

8.3. Summary and Conclusions

Based on the results of the Phase Ia Archeological Assessment Survey, it has been concluded that although much of the APE has been severely disturbed, the potential for both prehistoric and historic archeological sites still exists. While it is believed that the subsurface integrity of most sites that may be in the APE is probably poor, it is possible that an occasional intact archeological site could be encountered. By comparison, it is anticipated that the APE has a higher potential for containing historic sites than prehistoric sites. These suppositions are based on previous discoveries of intact archeological sites in and around the APE.

Due to the preliminary project stage, the scale of the APE, and the uncertainty of project variables pertaining to anticipated ground disturbance (e.g., station locations, transit mode, tunnels vs. elevated structures), detailed archeological impact studies have been deferred until the selection of a Locally Preferred Alternative.

It is recommended that the next stage of the archeological study involve a careful examination of the APE (revised per the Locally Preferred Alternative). This study should involve an examination of the relationship of the project to previously identified archeological resources in order to assess levels of studies that may be warranted. Study efforts should focus on the 21 areas of archeological potential identified in the 2005 Phase Ia survey of the corridor and any potential impacts made to the Taylor, College Park Airport, Clean Drinking Water, and Fire Sites. If applicable, fieldwork designed to confirm the presence/absence of archeological sites and evaluate any identified sites should also be performed. The results of these efforts would then be used to develop appropriate cultural resource recommendations and treatments.

Four previously identified archeological sites potentially impacted by the proposed Purple Line would require further evaluation. These sites include the Taylor Site (18MO243), a partially intact Late Archaic to Middle Woodland procurement camp; the College Park Airport Site (18MO200), which contains the potential for intact historic structural remains associated with the College Park Airport, the world's oldest continually operating airport; the Clean Drinking Water Manor Site (18MO30), a late eighteenth century manor house contains potential for buried structural remains and other historic features related to domestic activities; and the Fire Site (18MO263), which is classified as a prehistoric lithic scatter site containing potential for possible intact prehistoric features.

The MHT staff requested a preliminary identification survey effort for the Purple Line, and that a more intensive survey effort be deferred until a Locally Preferred Alternative has been selected.

As requested by the MHT staff, the current archeological study represents a detailed summary of all previously recorded archeological sites in the APE, including information on the nature of the completed investigations, the character of the identified sites, and their current condition. Upon the selection of the Locally Preferred Alternative, a more detailed evaluation of the potential impacts of the Locally Preferred Alternative to archeological resources will be developed and included in a Section 106 Effects Determination document, which will be coordinated with the MHT and other consulting parties. This planning document will include additional effects

analysis on the archeological resources within the APE for the Locally Preferred Alternative and archeological sensitivity modeling to identify locations within the APE that may warrant additional investigation or field evaluation.

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